PRELIMINARY ASSESSMENT/SITE INSPECTION **FOR**



State Project Manager

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1.0 INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and the Superfund Amendments and Reauthorization Act (SARA) of 1986, the Arkansas Department of Environmental Quality (ADEQ), Hazardous Waste Division, Inactive Sites Branch, conducted an Preliminary Assessment/Site Inspection (PA/SI) at the BPS, Inc. (ARD983288572) site in West Helena, Phillips County, Arkansas.

1.1 Purpose and Objectives of the PA/SI

The PA/SI is a combined phase of investigations in the EPA's ongoing screening process of evaluating hazardous waste sites for further action in the Superfund program. The purpose of this investigation was to collect information on the BPS, Inc. site sufficient to assess the threat posed to human health and the environment, to determine the need for additional action under CERCLA/SARA or other authority, and to support site evaluation using the Hazard Ranking System (HRS). The investigation included reviewing available file information, sampling environmental media, evaluating and documenting HRS factors, and collecting additional non-sampling information.

1.2 Scope of Work

The PA/SI Scope of Work focused on defining the nature and extent of hazardous substances in the soil exposure pathway and the surface water migration pathway. Specific surface soil sample and sediment sample locations were selected for this purpose, and to determine attribution to site operations.

2.0 SITE CHARACTERISTICS

This section addresses the site location and description, operational history, previous investigations and regulatory involvement, waste characteristics, and other site concerns.

2.1 OPERATIONAL HISTORY

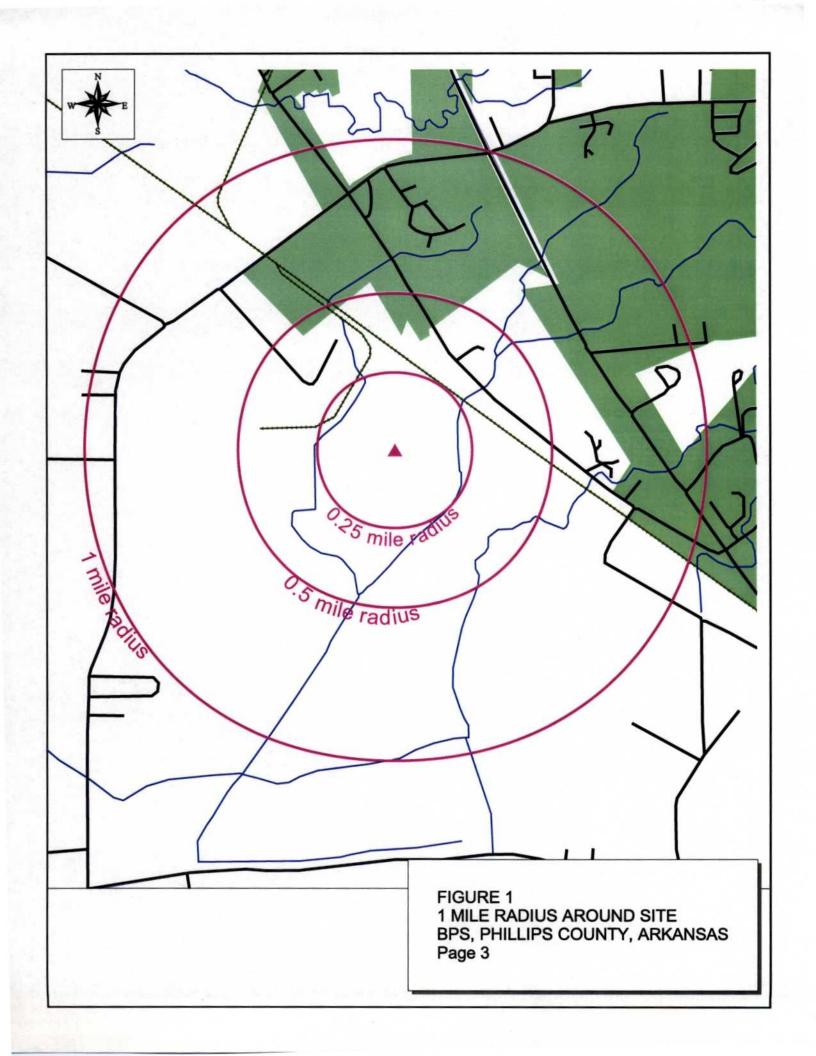
The BPS site is located at 794 Phillips Road 311, in West Helena, Phillips County, Arkansas (Figure 1; Figure 2; Figure 3). The geographical coordinates of the site are 34° 30′ 58″ latitude North and 90° 39′ 03″ longitude West (Reference 1). The site is bordered on all sides by agricultural land.

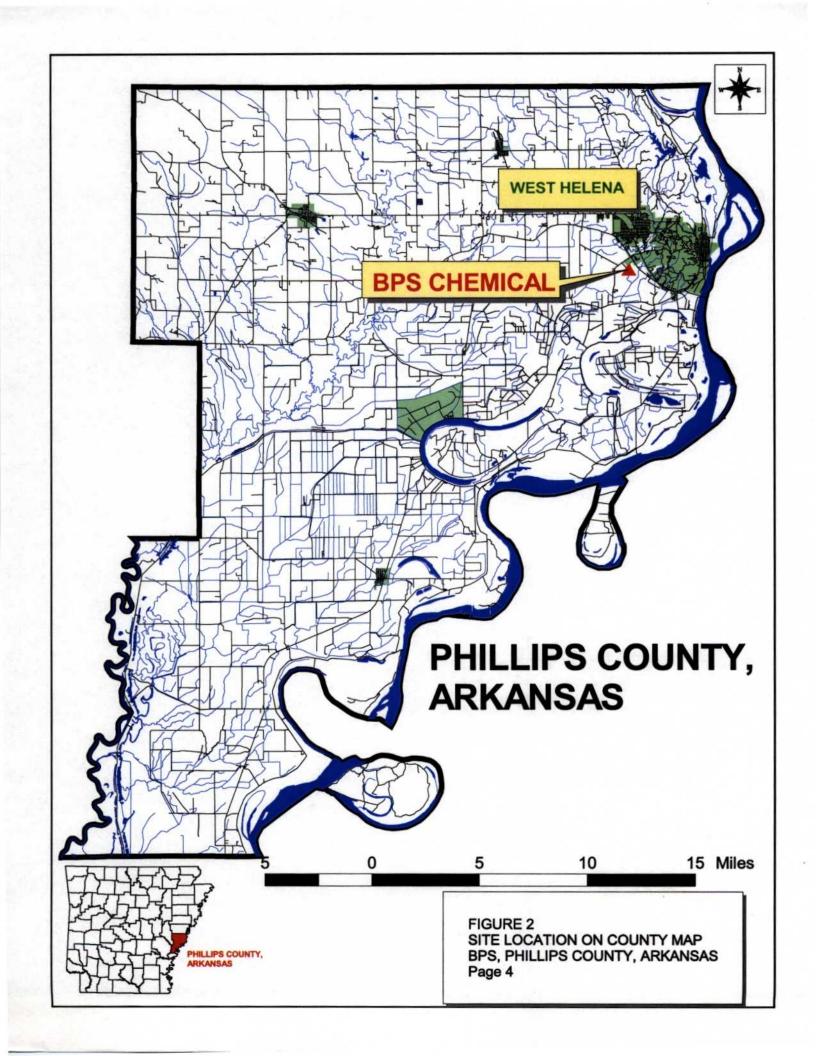
BPS is an active pesticide repackaging plant. The facility consists of BPS Unit 1 and BPS Unit 2.

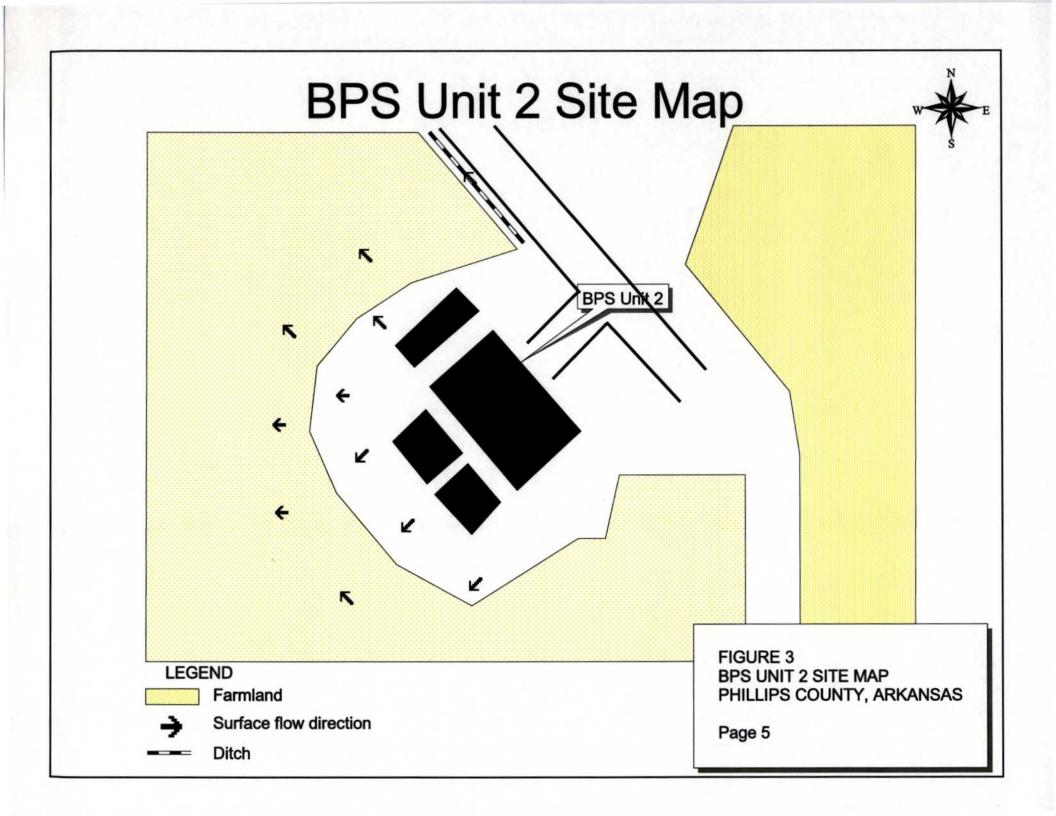
Large volume containers (supersacks and drums) containing various pesticides are received by the facility. BPS repackages these bulk containers into retail-size packages. Pesticides are not manufactured on site. The facility is currently owned by the Bartlo family. Alan Bartlo is president of BPS.

2.2 WASTE CHARACTERISTICS AND REGULATORY INVOLVEMENT

On May 8, 1997, BPS Unit 2 employees were unloading a trailer of supersacks containing azinphosmethyl pesticide when one (1) supersack was observed to be smoldering. Facility employees were evacuated while the West Helena Fire Department responded to the incident. While firemen were making entry into the building, an explosion occurred killing three (3) of the firemen. The EPA Region







6 Superfund Technical Assessment and Response Team responded to the emergency and ensuing fire along with various other federal and local government agencies, surrounding fire departments and consultants. A full account of the response and representatives present is listed in Reference 1.

Areas downstream from the facility were bermed to collect contaminated water generated from the facility fire. The water was eventually contained in frac tanks for storage until disposal. An emergency hazardous waste treatment permit was issued by ADPC&E (ADEQ) for the treatment of approximately 80,000 gallons of contaminated water generated during the fire. Following the emergency, soil samples were collected from the facility and surrounding areas. Analytical results were not available for inclusion into the TWP. Environmental investigation and remedial activities were conducted by OHM under contract with BPS. Consent Administrative Order (CAO) LIS 97-106 was signed and issued on August 26, 1997 to address remaining wastes left on site.

3.0 PATHWAY ASSESSMENT

This section characterizes the environmental pathways and associated targets of potential contaminant migration from the site.

3.1 GROUNDWATER MIGRATION PATHWAY

3.1.1 Groundwater Characteristics

Eastern Arkansas is underlain by Cretaceous age through recent sedimentary deposits with small areas of igneous intrusions of Cretaceous age. Eastern Arkansas is dominated by Quaternary terrace and

alluvial deposits with minor exposures of Tertiary units which underlie the Quaternary age material (Reference 3).

West Helena is located at the southern end of the alluvial plain. In the alluvial plain, the pre-Quaternary units, ranging in age from Ordovician to Tertiary, are truncated and blanketed by Quaternary alluvium, except on Crowleys Ridge where Tertiary units crop out or are capped by older Quaternary deposits. The alluvial aquifer serves as the major sources of groundwater in the area. It is composed of sand and gravel in the Quaternary alluvium. The aquifer obtains a maximum thickness of about 150 feet on the west side of Crowleys Ridge and a maximum thickness of about 200 feet of the east side of Crowleys Ridge. The alluvial aquifer is underlain by the Jackson-Claiborne clay. This unit reaches a maximum thickness of about 500 feet and contains the Jackson and upper parts of the Claiborne Group. The Jackson Group contains mostly dense clay and the Claiborne Group contains a silty clay with some clay lenses. This unit acts as a confining bed under the alluvial aquifer (Reference 5).

3.1.2 Groundwater Receptors

According to the United States Geological Survey, there are no groundwater wells located on the property or immediately down gradient of the site. Groundwater samples were not collected for the PA/SI as this pathway does not appear to contribute significantly to the overall HRS score.

3.2 SURFACE WATER MIGRATION PATHWAY

3.2.1 Surface Water Characteristics

The BPS site lies within the Delta Region of the Gulf Coastal Plain Physiographic Province.

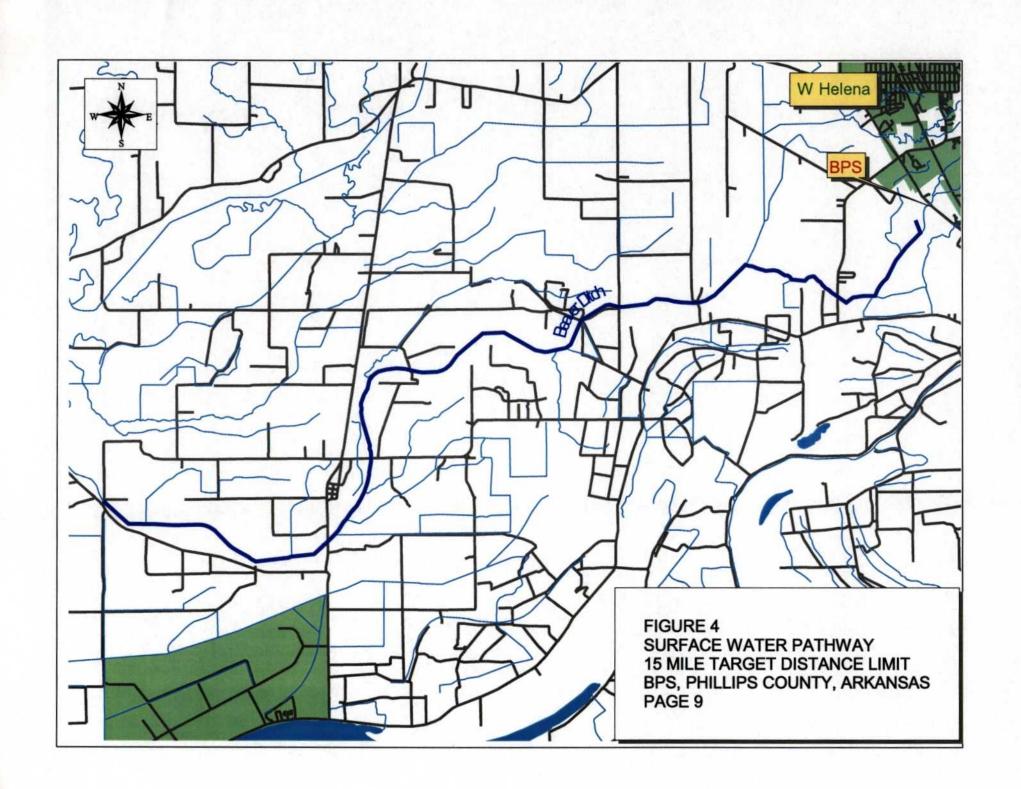
Topography in Phillips county can be divided into three main areas. These areas include level to gently undulating bottom lands, the moderately steep to steep Crowley Ridge, and level to moderately sloping upland plain west of Crowley Ridge (Reference 4). Flood frequency data was not available for the BPS location.

Topography on site is relatively flat. Surface water leaving the site flows in a south/southwesterly direction for approximately 3.25 miles through an unnamed intermittent stream before entering Beaver Bayou. Surface water continues to flow in Beaver Bayou in a south/southwesterly direction for the remainder of the 15-mile Target Distance Limit (TDL). Surface water eventually enters into Big Creek well beyond the TDL (Figure 4).

3.2.2 Surface Water Receptors

No flow data or comparable data is available for Beaver Bayou. However, Beaver Ditch has a drainage area of approximately 16 square miles at the intersection of the intermittent stream and Beaver Ditch (Figure 4).

Designated uses have been established for streams within 15 miles downstream of the site. These include primary and secondary contact recreation, and perennial and seasonal fisheries (Reference 6).



No wetland areas have been identified using USGS 7.5 minute topographic maps within 15 miles downstream of the site within the surface water drainage pathway.

The Arkansas Natural Heritage Commission maintains a database on the status and location of elements of special concern in Arkansas. An element of special concern includes sensitive species, natural communities, or colonial bird-nesting sites. There is one (1) element of special concern within a four (4) mile radius of this referenced location and 41 elements of special concern within a 15-mile radius of this referenced location. Three (3) Federal managed areas occur within a 15-mile radius of the site. Specific elements are listed in Reference 7.

The City of West Helena relies on the West Helena Water Works for drinking water supply. Four (4) groundwater wells located in the city of West Helena at depths of approximately 600 to 800 feet supply the city with water.

3.3 SOIL EXPOSURE PATHWAY

3.3.1 Soil Description

Surface soils in Phillips County consists mainly of alluvium and loess. Most alluvium is located in the southern part of the county and most loess is located in the northern part of the county. Two (2) soil series exist within the area of the site location. These include the Convent and Jeanerette series soils. Convent silt loam soils are located on young natural levees and alluvial fans at the foot of Crowley Ridge. Convent silt loam is typically dark grayish-brown silt loam about seven (7) inches thick.

Material beneath consists of stratified layers of grayish-brown, dark-gray, and gray, mottled silt loam.

Permeability is moderate, and the available water capacity is high (Reference 5).

Jeanerrette silt loam soils are poorly drained soils occurring in slight depressions on uplands. The surface layer is silt loam about 16 inches thick. The upper four (4) inches is very dark grayish-brown, and the lower 12 inches is black. The upper part of the subsoil is light brownish-gray, mottled silty clay loam about 27 inches thick and the lower part is light brownish-gray, mottled silt loam about 17 inches thick. Permeability is moderately slow and the water capacity is high.

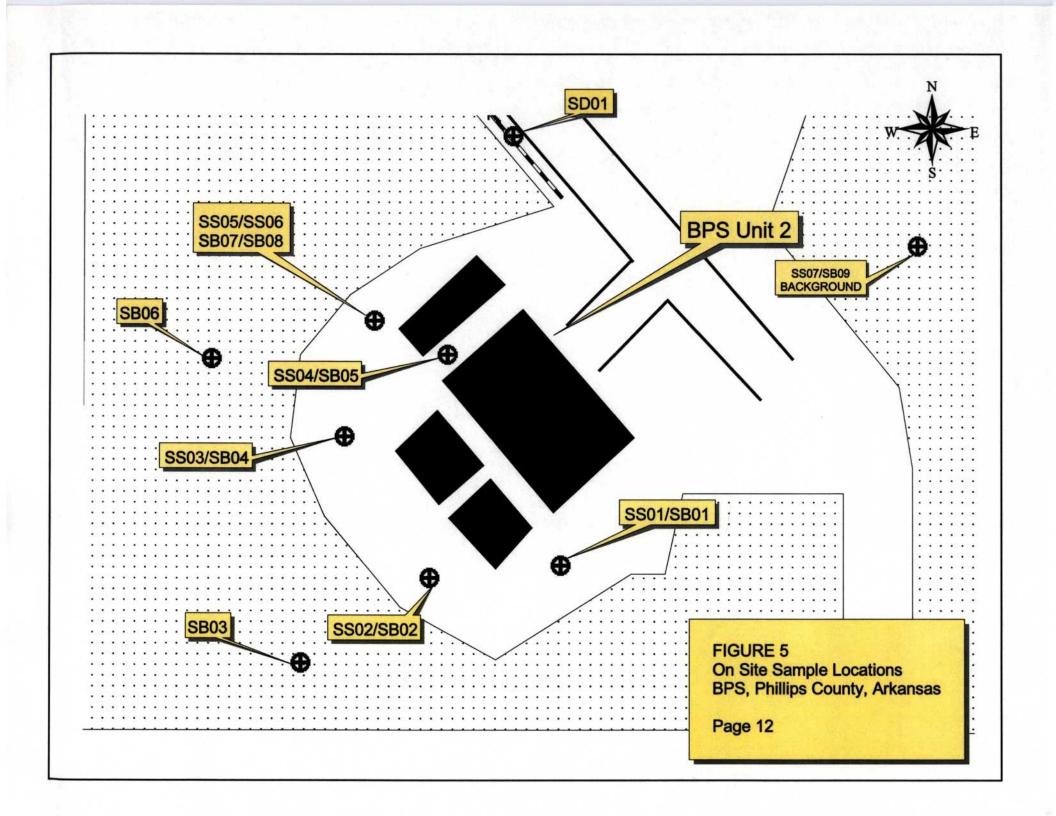
3.3.2 Surface Soil Receptors

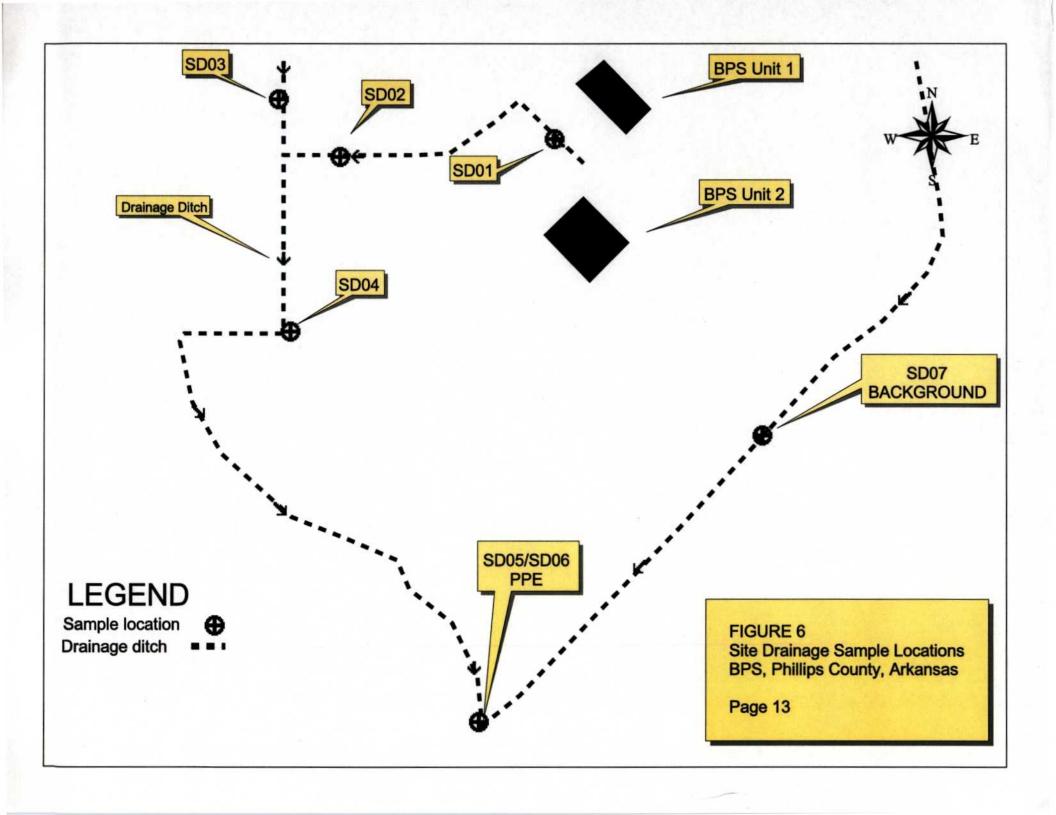
The BPS site is active employing 65 people. The site is located within an area of mixed commercial property and agricultural land. No schools or day cares are known to exist within 200 feet of the site. Population around BPS site is listed in Table 1.

TABLE 1
POPULATION AROUND BPS SITE

POPULATION BETWEEN	POPULATION WITHIN
0 - 0.25 miles = 35	0.25 miles = 35
0.25 - 1 mile = 71	1 mile = 106
1 - 2 miles = 696	2 miles = 802
2 - 3 miles = 1660	3 miles = 2,462
3 - 4 miles = 2463	4 miles = 4,925

Reference 8





3.4 AIR MIGRATION PATHWAY

The site is covered in vegetation with no apparent dust dispersion. Air samples were not collected for the SI since this pathway does not appear to contribute significantly to the overall HRS score.

4.0 ANALYTICAL RESULTS

This section addresses SI sampling methodology and SI analytical results.

4.1 Sampling Methodology

ADEQ conducted an SI sampling event at the BPS site on September 12, 2000. Samples were collected at the site to: (1) define site waste characteristics, (2) attribute hazardous substances to site operations, (3) establish representative background levels, and (4) provide sufficient data for the HRS package. The sampling strategy was based on historic operations, the soil exposure pathway, and the surface water pathway. Areas of possible contamination were targeted for surface soil, subsurface soil, and sediment. Twenty-three (23) surface soil, subsurface soil, and sediment samples were collected during the SI sampling event (Figure 5, Figure 6) (Table 2) (Reference 2). All 23 samples were analyzed for Target Compound List (TCL) organics (BNA fractions only), TCL Pesticide/PCB, and Target Analyte List (TAL) metals.

All surface soil, subsurface soil and sediment samples were collected using presterilized plastic scoops.

All equipment had been sealed prior to sampling in order to eliminate cross-contamination of samples

(Reference 2). Subsurface soil samples were collected at a depth of six (6) to eight (8) inches below

TABLE 2 PA/SI SAMPLE LOCATIONS AND RATIONALE

STATION NUMBER	PROPOSED SAMPLE LOCATION	RATIONALE
SS01	southeast corner of BPS unit 2 site	to evaluate hazardous constituents in the soil exposure pathway
SS02	area on southern side of BPS unit 2	to evaluate hazardous constituents in the soil exposure pathway
SS03	area on western side of BPS unit 2	to evaluate hazardous constituents in the soil exposure pathway
SS04	area near picnic tables on BPS unit 2 site	to evaluate hazardous constituents in the soil exposure pathway
SS05	area on western side of BPS unit 2	to evaluate hazardous constituents in the soil exposure pathway
SS06	duplicate of SS05	to evaluate hazardous constituents in the soil exposure pathway
SS07	agricultural field approximately 200 yards northeast of BPS unit 2	to evaluate background constituents in the soil exposure pathway
SB01	southeast corner of BPS unit 2 site	to evaluate hazardous constituents in the soil exposure pathway
SB02	area on southern side of BPS unit 2	to evaluate hazardous constituents in the soil exposure pathway
SB03	agricultural field 100 yards southwest of BPS unit 2	to evaluate hazardous constituents in the soil exposure pathway
SB04	area on western side of BPS unit 2	to evaluate hazardous constituents in the soil exposure pathway
SB05	area near picnic tables on BPS unit 2 site	to evaluate hazardous constituents in the soil exposure pathway
SB06	agricultural field 100 yards west of BPS unit 2	to evaluate hazardous constituents in the soil exposure pathway
SB07	area on northwest side of BPS unit 2	to evaluate hazardous constituents in the soil exposure pathway
SB08	duplicate of SB07	to evaluate hazardous constituents in the soil exposure pathway
SB09	agricultural field approximately 200 yards northeast of BPS unit 2	to evaluate background constituents in the soil exposure pathway
SD01	drainage ditch immediately north of BPS unit 2	to evaluate hazardous constituents in the surface water migration pathway
SD02	drainage ditch approximately 200 yards downstream of SD01	to evaluate hazardous constituents in the surface water migration pathway
SD03	drainage ditch above confluence with BPS drainage ditch	to evaluate hazardous constituents in the surface water migration pathway
SD04	drainage ditch near pump station	to evaluate hazardous constituents in the surface water migration pathway
SD05	drainage ditch at PPE	to evaluate hazardous constituents in the surface water migration pathway
SD06	duplicate of SD05	to evaluate hazardous constituents in the surface water migration pathway
SD07	drainage ditch approximately 1/4 mile above PPE	to evaluate background constituents in the surface water migration

ground surface.

During the collection of the samples, the ADEQ sampling team generated different types of Investigation Derived Wastes (IDW). The IDW included personal protective equipment (PPE) and disposable sampling equipment. All generated IDW were managed consistent with EPA guidance set forth in Management of Investigation-Derived Wastes During Site Inspections (EPA/540/G-91/9009) (Reference 2).

Samples were preserved consistent with EPA protocols established in <u>A Compendium of Superfund</u>

<u>Field Operations Methods</u> (EPA/540/P-87/001). All samples collected for analysis were cooled to 4⁰

Celsius by packaging the samples on ice (Reference 2).

All samples collected during the SI were packaged according to EPA Contract Laboratory Analytical Support Services (CLASS) protocols. All samples were shipped overnight to a preassigned laboratory (Reference 2).

Photographs taken during the SI are in Appendix A. Chemical Data Summaries are in Appendix B. Sample receipts are in Appendix C. Appendix D includes copies of the Organic Traffic Report, Inorganic Traffic Report, and Chain-of-Custody forms.

The Project Manager for the BPS site is Terry Sligh. The project manager is responsible for planning and coordinating all on site and off site activities, and for documenting and managing all samples

collected. Terry Sligh was assisted in collecting, documenting, and managing samples by Lynn Shaw (ADEQ Hazardous Waste Inspector Supervisor) and Vicky Prewett (ADEQ Hazardous Waste Inspector) (Reference 2).

4.2 Analytical Results

Low concentration surface and subsurface soil samples were collected from areas on site. Low concentration sediment samples were collected on site and in the surface water drainage pathway offsite. These samples were used to characterize any sources of contamination, and to document any threat to human health and/or environment.

Chemical analysis of the samples were performed according to the EPA CLASS protocol, and the results were reviewed by ADEQ staff. ADEQ reviewed the data making comparisons to background samples concentrations and Sample Quantitation Limits (SQLs) to determine observed releases and observed contamination. Contaminant concentrations greater than three (3) times their respective background concentrations and above their respective SQLs are considered to meet observed contamination criteria in the soil exposure pathway or observed release criteria in the surface water migration pathway. The SQL calculations are included in appendix B.

4.2.1 Background Sample Analysis

The background samples for the soil exposure pathway (SS07/SB09) were collected from an agricultural field approximately 200 yards northeast of the site. The background sample for the surface

water migration pathway was collected approximately 400 yards above the PPE (Table 2) (Figure 5, Figure 6) (Reference 2) (Appendix A; Appendix B).

4.2.2 Pathway Sample Analysis

Analysis of the surface soil sample collected at Stations SS01, SS02, SS03, SS04, SS05, and SS06 revealed the presence of calcium and magnesium at concentrations meeting observed contamination criteria (Table 3) (Figure 5) (Appendix A; Appendix B).

TABLE 3
INORGANIC CONTAMINANTS DETECTED IN SURFACE SOIL SAMPLES

Magnesium	8140 •	10100 •	4460 ●	7530 •	3810 •	4590 ●	1020 L
Calcium	20700 •	17700 ●	6340 •	14300 •	7550 •	9230 •	886.8 av
LOCATION	SS01	SS02	SS03	SS04	SS05		SS07 Background

U - undetected

Jv - value biased low

av - adjusted value

• observed contamination

Analysis of the sediment sample collected at Station SD04 revealed the presence of arsenic, barium, cobalt, manganese, and vanadium at concentrations meeting observed contamination criteria (Table 4) (Figure 6) (Appendix A; Appendix B).

Analysis of the sediment sample collected at Station SD05 revealed the presence of arsenic, barium, cobalt, lead, manganese, and nickel at concentrations meeting observed contamination criteria (Table 4)

L - between CRDL and IDL

(Figure 6) (Appendix A; Appendix B).

Analysis of the sediment sample collected at Station SD06 revealed the presence of arsenic, cobalt, manganese, and vanadium at concentrations meeting observed contamination criteria (Table 4) (Figure 6) (Appendix A; Appendix B).

TABLE 4
INORGANIC CONTAMINANTS DETECTED IN SEDIMENT SAMPLES

LOCATION	SD04	SD05	SD06	SD07 background
Arsenic	34.6 ●	31.2 •	35.1 ●	8.4
Barium	859 •	781 ●	447	165
Cobait	45.3 •	52.7 ●	34.6 ●	8.0 L
Lead	38.4	41.3 ●	35.8	13.1
Manganese	6240 •	7050 ●	4690 ●	911
Nickel	51.8	69.7 ●	37.6	18.5
Vanadium	73.2 •	57.2	64.3 ●	21.1

U - undetected

Analysis of the sediment samples collected at Stations SD01 and SD02 revealed the presence of 4,4'DDE at concentrations meeting observed contamination criteria (Table 5) (Figure 6) (Appendix A;
Appendix B).

L - between CRDL and IDL

Jv - value biased low

av - adjusted value

[•] observed contamination

TABLE 5
PESTICIDE CONTAMINANTS DETECTED IN SEDIMENT SAMPLES

LOCATION	SD01	SD02	SD07 bsckground
4,4' -DDE	40 ●	18 ●	4.1 U

U - undetected

L - between CRDL and IDL

Jv - value biased low

av - adjusted value

• observed contamination

5.0 SUMMARY

The Arkansas Department of Environmental Quality (ADEQ), Hazardous Waste Division, Inactive Sites Branch, conducted a PA/SI at the BPS site. The BPS site is an active site located at 794 Phillips Road 311, in West Helena, Phillips County, Arkansas. The site is bordered on all sides by agricultural land.

BPS is an active pesticide repackaging plant. The facility consists of BPS Unit 1 and BPS Unit 2.

Large volume containers (supersacks and drums) containing various pesticides are received by the facility. BPS repackages these bulk containers into retail-size packages. Pesticides are not manufactured on site.

ADEQ conducted a SI sampling event at BPS, Inc. on September 12, 2000. Areas of possible

contamination were targeted for surface and subsurface soil sampling and sediment sampling. Seven (7) surface soil samples, nine (9) subsurface soil samples, and seven (7) sediment samples, including duplicates, were collected during the sampling event. All 23 samples were analyzed for (TCL) organics (BNA fractions only), TCL Pesticide/PCB, and Target Analyte List (TAL) metals.

Analysis of the surface soil samples collected document the presence of calcium and magnesium at levels meeting observed contamination criteria. Analysis of the subsurface soil samples collected on site document the presence of 4,4'-DDE at levels meeting observed release criteria. Sample collection locations were chosen to determine if on site contamination was present in the soil exposure pathway and met observed release criteria. Analysis of sediment samples collected in the surface water pathway document the presence of arsenic, barium, cobalt, lead, nickel, and vanadium at levels meeting observed release criteria.

Semivolatile organic compounds were not detected in surface soil, subsurface soil, or sediment samples and did not meet observed contamination or observed release criteria.

The pathways of concern at BPS, Inc. are the soil exposure and surface water pathways. The BPS site is active with workers present. The site is located within a mixed agricultural/commercial area. No schools or day-care are known to exist within 200 feet of the site.

The majority of contaminants detected were found in the surface water pathway at off site sample

locations. The contamination is not exclusively attributable to past site operations at BPS, Inc. since sample locations are in an area considered to be light industrial and agricultural.

Due to the inability to document all contaminants as being attributable to site operations, and a lack of substantial contamination, a pre-score package is not recommended. ADEQ recommends that no further action be taken concerning the BPS Site under CERCLA, and that the facility be considered for listing on the Archive CERCLIS list.

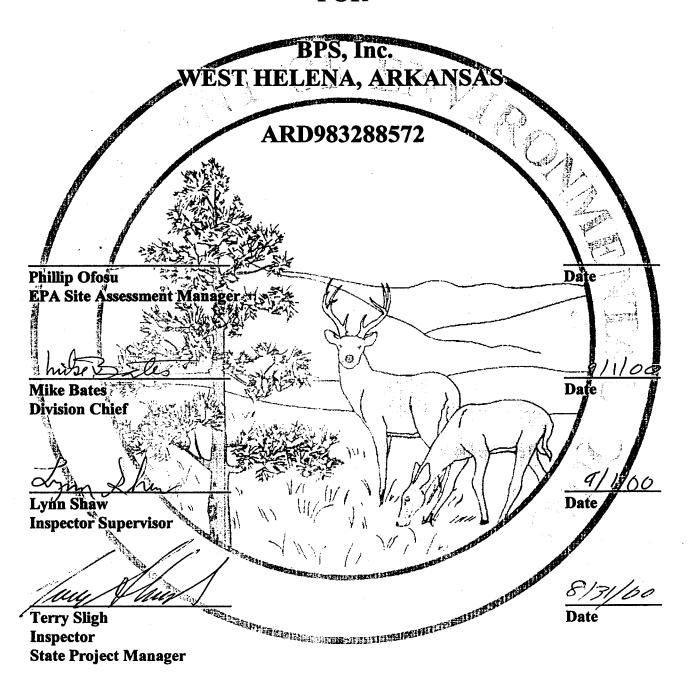
REFERENCES

- 1. Arkansas Department of Environmental Quality, PA/SI Task Work Plan for BPS, Inc. (ARD983288572), West Helena, Phillips County, Arkansas, August 31, 2000.
- 2. Sligh, Terry L., Hazardous Waste Inspector, Arkansas Department of Environmental Quality, Field Logbook #1, 1999, pages 72-73.
- 3. Arkansas Geological Commission, "Geology of Arkansas", Information downloaded from internet site "http://www.state.ar.us/agc/argeol.htm.
- 4. United States Department of Agriculture, Soil Conservation Service, Soil Survey of Phillips County, Arkansas, 1974.
- 5. Arkansas Geological Commission, "Alluvial Aquifer of the Cache and St. Francis River Basins", Water Resources Circular No. 13, 1982.
- 6. Arkansas Department of Pollution Control and Ecology, Regulation 2, Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas, April 1998.
- 7. Osborne, Cindy, Arkansas Natural Heritage Commission, written correspondence with William Penn, Arkansas Department of Environmental Quality, RE: Elements of Special Concern within a 1, 4, and 15-mile radius of the BPS Site
- 8. Penn, William, Arkansas Department of Environmental Quality, Estimated population around BPS Site, extracted from 1990 Census of Population and Housing using Landview III Environmental Mapping Software.

REFERENCE 1

Task Work Plan

PRELIMINARY ASSESSMENT/SITE INSPECTION FOR



REFERENCE 2

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REFERENCE 3

Arkansas Geological Commission

<u>Homepage</u>	Location	<u>Services</u>	<u>Maps</u>	<u>Publications</u>	
<u>Personnel</u>	Arkansas Geology	Resources	Mineral Producers	<u>Links</u>	

Geology of Arkansas

Rocks are generally placed into 1 of 3 major categories: igneous, metamorphic, or sedimentary. Igneous rocks have solidified from molten or partly molten mineral matter. Metamorphic rocks have been altered in the solid state from some pre-existing condition in response to significant changes in temperature, pressure, or chemical environment. Sedimentary rocks are composed of particles of sediment, which are derived by the weathering and/or the erosion of pre-existing rock. Most surficial rocks in Arkansas are sedimentary, but there are some igneous rocks (with adjacent contact metamorphic rocks) and very low grade regional metamorphic rocks in Arkansas also.

A sedimentary rock consists of two components: the particles and the cement that holds them together. However, the unconsolidated sediments of eastern Arkansas are considered sedimentary rocks. Sedimentary rocks are classified as clastic (rocks made up of grains of sand, silt, and clay) or chemical (rocks made up of shell fragments, saline water deposits, and other materials that are deposited from solution). The most common clastic sedimentary rocks are shales, siltstones, and sandstones. The most common chemical sedimentary rocks are limestone and dolostone.

To understand how sedimentary rocks form, we must account for the processes that create the original particles of sediment, the mechanisms of sediment transport, the processes of deposition or precipitation of a given sediment, and what has happened to the sediment over time. By studying rocks and depositional systems (the processes by which sediments are deposited), geologists recognize that most of the sedimentary rocks in the Paleozoic Highlands of Arkansas are marine. In the southern and eastern parts of the state, the sedimentary deposits are predominantly fluvial (fresh-water processes).

The exposures of igneous rocks in Arkansas are less than 0.1 percent of the entire area of the state. Most are exposed over 15 square miles, principally in Pulaski, Saline, Hot Spring, Garland, and Pike Counties. A few small igneous dikes and sills are present outside the Ouachita region, mostly in the Arkansas Valley, and in at least one case, in the Boston Mountains. Except for some localized contact metamorphism adjacent to the larger igneous intrusions, only very low grade metamorphic rocks are present in the state.

Arkansas is divided into a highland area in the northwest and a lowland region in the south and east. The rocks in the highland area are dominated by well-lithified sandstones, shales, limestones, and dolostones of Paleozoic age. A thin drape of younger unconsolidated clays, sands, and gravel, termed alluvium, is often found in valley floors and associated with the streams and rivers. The sedimentary deposits of the lowlands are mainly unconsolidated clay, sand, and gravel of Quaternary age, poorly consolidated deposits of clay, sand, silt, limestone, and lignite of Tertiary age, and consolidated (to a limited extent) deposits of Cretaceous marl, chalk, limestone, sand, and gravel.

When most of the sediments that compose the rocks in the highland region of Arkansas were being deposited, north Arkansas was a shallow south-sloping sea floor (continental shelf), the Arkansas River Valley was near the edge of the shelf, and the Ouachita area was a deep abyssal plain (see <u>General Geologic History</u>). An abyssal plain is the relatively smooth and deep (more than 3,000 feet below sea level) parts of the ocean floor where accumulating sediments have buried the pre-existing topography. In the late Paleozoic Era, a broad uplift domed the Ozark strata with little structural disruption. Simultaneously, a collision of two of the earth's mobile continental plates compressed the sediments of the abyssal plain into the Ouachita Mountains. This multimillion-year-long process folded and faulted the Ouachita strata into a structurally complex mountain chain. The Arkansas River Valley area is the transition zone between the structurally simple Ozarks and the structurally complex Ouachitas with subdued characteristics in each region.

Today, the rocks of the Ozarks tilt slightly to the south and have a dendritic drainage pattern. Since shales and

siltstones erode faster than sandstones and limestones, the basic topography is flat-topped mountains with stepped flanks. By contrast, the topographic expression of the Ouachitas is controlled not only by the erosional resistance of the rocks, but also by their internal structure. The strata are complexly folded and frequently faulted. The mountains are mostly east-west-trending ridges supported by erosionally resistant rocks and separated by less resistant rocks. The Arkansas River Valley is characterized by much less intensely folded and faulted strata than the Ouachita region. Erosional processes left the synclines as mountains and the anticlines as valleys.

The rocks and sediments of the Mississippi River Alluvial Plain and West Gulf Coastal Plain (both in the south and east portion of the state) are much younger than those of the Interior Highlands. The Cretaceous-age rocks of southwest Arkansas were deposited in and along the margin of a shallow sea. The Tertiary-age materials of southern Arkansas represent marginal marine conditions, both on- and off-shore deposits. The unconsolidated Quaternary sediments of eastern Arkansas were deposited by water released during the interglacial phases of the Ice Age.

Crowley's Ridge is an isolated erosional remnant carved by rivers, possibly with structural control from ancient seismic activity. Significant deposits of wind-blown dust (loess) were also deposited across Arkansas during the Quaternary.

Arkansas' rocks, minerals, fossils, fossil fuels, and its water resources resulted from prolonged episodes of deposition, mountain building, and erosion. The interaction of these and other processes was variable throughout Arkansas. Long-term changes in climate were also significant.

Modified from AGC Bulletin 24: Mineral, Fossil-Fuel, and Water Resources of Arkansas, 1997

Arkansas Geological Commission

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Stratigraphic summary of the Mississippi Embayment and Gulf Coastal Plain

Eastern and southern Arkansas are underlain by Cretaceous age through Recent sedimentary deposits with small areas of igneous intrusions of Cretaceous age. Cretaceous sedimentary deposits are exposed in southwestern Arkansas and represent shallow, marginal, and often restricted marine environments. Southern Arkansas is dominated by Tertiary marginal marine and coastal plain continental deposits with a veneer of Quaternary terrace and alluvial deposits. Eastern and northeastern Arkansas is dominated by Quaternary terrace and alluvial deposits with minor exposures of Tertiary units. At least three terrace levels are recognized in the region. The Mississippi Embayment manifests a north-south linear erosional remnant Crowley's Ridge, which is generally capped by Quaternary loess and preserves minor exposures of Tertiary deposits along its margins. Topographically, the entire area ranges from low hills to essentially flat terrain.

TRINITY GROUP/FORMATION

Age: Early Cretaceous Period, Comanchian Series Distribution: Gulf Coastal Plain in southwest Arkansas. Parts of Little River, Sevier, Howard, Hempstead, Pike, Clark, and Nevada counties; Texas, Louisiana, Oklahoma Geology: The Trinity Group is comprised of sand, gravel, clay, limestone, and evaporite deposits. Gypsum is mined commercially from this unit. Prominent members of the Trinity Group include the Pike Gravel Member, the Dierks Limestone Member, and the DeQueen Limestone Member. The Pike Gravel, the basal member of the Trinity Group, is a bedded, 0- to 100-foot thick, pale-yellow to medium-orange, predominantly gravel-bearing deposit. The Dierks Limestone Member is a 0- to 70foot thick, interbedded, greenish, calcareous clay and gray, fossiliferous limestone present in the lower part of the Trinity. The DeQueen Limestone Member, which varies from 0 to 100 feet in thickness, is present in the middle part of the Trinity Group sequence and is composed of interbedded green and gray calcareous clay, limestone, gypsum and celestite. The limestones are thin-bedded and sandy, but crystalline and fossiliferous intervals are present. The DeQueen Limestone Member is also noted for a dinosaur track-way site discovered in a mine near Nashville in Howard County. The upper part of the Trinity Group is mostly fine-grained, crossbedded sand, usually weathered reddish. Marginal marine fossils are noted from the Trinity Group and carbonized logs are found between the Dierks and DeQueen Limestone Members. The base of the Trinity Group rests unconformably on a surface of upturned and eroded Paleozoic rocks. The Trinity Group ranges up to 1,000 feet in thickness, although it is usually much thinner.

Original Reference: R. T. Hill, 1888, Science, v. 11, p. 21
Type locality: Named for exposures on the Trinity River of Texas

GOODLAND LIMESTONE/FORMATION

Age: Early Cretaceous Period, Comanchian Series
Distribution: Limited exposure along Little River north of Cerrogordo, Little River
County, Arkansas, Gulf Coastal Plain; Oklahoma and Texas
Geology: The Goodland Limestone is a medium- to thick-bedded, hard, sandy, light-

gray limestone with minor thin-bedded calcareous sandstone. Poorly preserved fossils are common. The lower contact is not exposed in Arkansas. The maximum exposed thickness of the Goodland Limestone is 35 feet; however, the entire unit may reach 50 feet.

Original reference: R. T. Hill, 1891, Geological Society American Bulletin, v. 2, p. 504-514.

Type locality: Named for Goodland, Choctaw County, Oklahoma. (Old Goodland is present site of Good Switch on railroad, 3 miles south of Hugo, Oklahoma)

KIAMICHI FORMATION

Age: Early Cretaceous Period, Comanchian Series

Distribution: Very limited exposure in Little River County, Arkansas Gulf Coastal Plain; Oklahoma, Texas

Geology: The Kiamichi Formation is composed of closely packed oyster shells in a matrix of dense, hard, gray-green marl interbedded with softer gray and green marls. Discontinuous beds and lenses of fossiliferous limestone are found in some outcrops. Almost all fossils associated with this unit are assigned to *Gryphaea navia*. The conformability of the lower contact has not been reported in Arkansas. A maximum of 20 feet of the Kiamichi Formation is reported.

Original reference: R. T. Hill, 1891, Geological Society of America Bulletin, v. 2, p. 504-515.

Type locality: Named for historic plains of Kiamichi River near Fort Towson, Choctaw County, Oklahoma

WOODBINE FORMATION

Age: Late Cretaceous Period, Gulfian Series

Distribution: Gulf Coastal Plain in southwest Arkansas, parts of Pike, Howard, and Sevier Counties; Texas, Oklahoma, Louisiana

Geology: The Woodbine Formation is composed of bedded gravel, sand, bedded clay, and water-laid volcanic tuff and ash. The basal part of this unit is composed of gravel-bearing beds of variable thickness, which may be cemented by iron oxides to form a conglomerate. The overlying water-laid volcanic tuffs are sandy and cross-bedded. These sediments are blue-green when fresh, weathering to deep-red waxy clay-bearing units. Rare leaf fossils are noted from some clays of the Woodbine Formation. The formation was deposited upon an unconformable surface separating the Early and Late Cretaceous. The Woodbine Formation varies from 0 to 350 feet in thickness. Original reference: R. T. Hill, 1901, U. S. Geological Survey 21st Annual Report, pt. 7, p. 293.

Type locality: Named for exposures at Woodbine, Cooke County, Texas

TOKIO FORMATION

Age: Late Cretaceous, Gulfian Series

Distribution: Gulf Coastal Plain in southwest Arkansas in parts of Clark, Pike, Hempstead, Howard, Sevier and Little River Counties; Oklahoma Geology: The Tokio Formation is composed of a basal gravel overlain by coarse sand that is interbedded with light- to dark-colored clays. Some beds of calcareous or ferruginous sandstone are present. The basal unit of bedded gravel is variable in thickness, ranging from 1 to 25 feet. This gravel may be cemented by iron oxides in places to form a conglomerate. The sands are brown to gray and generally cross-bedded. The dark-gray clay is pyritic and contains plant imprints. Kaolin beds are found in the Tokio Formation in Pike County. Fossils from the Tokio Formation

include bivalves, gastropods, plant material, and a few vertebrate remains. The lower contact of the formation is unconformable, resting on the Woodbine Formation in Little River County and successively older units eastward. In Howard County, the thickness of the formation is 300 feet and the formation thins to the east.

Original reference: H. D. Miser and A. H. Purdue, 1918, U. S. Geological Survey Bulletin 690, p. 19-24.

Type locality: Named for exposure in the vicinity of Tokio, Hempstead County, Arkansas

BROWNSTOWN MARL/FORMATION

Age: Late Cretaceous Period, Gulfian Series

Distribution: Gulf Coastal Plain in southwest Arkansas in parts of Clark, Pike, Hempstead, Howard, Sevier and Little River Counties; Texas, Oklahoma, (Louisiana?)

Geology: The Brownstown Marl is composed of clay marls, thin (sometimes sandy) limestones, sandy marls, and some fine-grained sands. Glauconite and some phosphatic material may be associated with the various lithologies. Color is quite variable, depending on the degree of weathering, iron content, and other factors, yielding tan, brown, blue, green, red, yellow, gray, or any color combination and hue. Near the base of the unit, beds of thin hard limestone exist that contain poorly preserved fossils. The marls in the formation are often highly fossiliferous. The most common fossils are oysters and other bivalves, some cephalopods, and occasional echinoderms, fish material, and annelids. The Brownstown Marl rests unconformably on underlying formations. The formation is about 250 feet thick in Howard County, but thins both to the east and west.

Original reference: R. T. Hill, 1888, Arkansas Geological Survey Annual Report 1888, v. 2, p. 72, 86-87, 188; 1894, Geological Society of America Bulletin, v. 5, p. 302.

Type locality: Named after Brownstown, Sevier County, Arkansas

OZAN FORMATION

Age: Late Cretaceous Period, Gulfian Series

Distribution: Gulf Coastal Plain, parts of Clark, Pike, Hempstead, Howard, Sevier and Little River Counties; Oklahoma

Geology: The Ozan Formation consists of tan, sandy, micaceous marl with a basal lentil of sandy marl and marly sand. The basal lentil, known as the Buckrange Sand, is highly glauconitic and contains shark teeth and phosphatic nodules. Another glauconitic interval is sometimes present about 55 feet above the base of the Ozan. Near the top of the formation, the marls become more chalky. An occasional bed of hard limestone occurs in some outcrops near the top of the unit. Some of the Ozan Formation marls are highly fossiliferous, commonly containing bivalves (mostly oysters), cephalopods, gastropods, echinoderms, corals, crustaceans, fish material, and annelids. The Ozan Formation lies unconformably upon the Brownstown Marl. The Ozan Formation ranges from 150 to 250 feet in thickness.

Original reference: C. H. Dane, 1926, U. S. Geological Survey Press Bulletin 8823, September 10, 1926.

Type locality: Named for exposures along the middle fork of Ozan Creek and for the town of Ozan, Hempstead County, Arkansas

ANNONA CHALK/FORMATION

Age: Late Cretaceous Period, Gulfian Series

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Distribution: Gulf Coastal Plain in southwest Arkansas in parts of Hempstead, Howard, and Little River Counties; Texas, Louisiana, Oklahoma Geology: The Annona Chalk is a hard, thick-bedded to massive, slightly fossiliferous chalk. It weathers white, but is blue-gray when freshly exposed. The unit is commercially mined for cement. Fossils in the Annona Chalk include coelenterates, echinoderms, annelids, bivalves, gastropods, cephalopods, and some vertebrate traces. The Annona rests conformably upon the Ozan Formation. The formation varies from 0 to 100 feet in thickness.

Original reference: R. T. Hill, 1894, Geological Society of America Bulletin, v. 5, p. 308.

Type locality: Named for outcrops about 2 miles northwest of Annona, Red River County, Texas

MARLBROOK MARL/FORMATION

Age: Late Cretaceous Period, Gulfian Series

Distribution: Gulf Coastal Plain in southwest Arkansas in parts of Clark, Hempstead, Howard, and Little River Counties; Texas, Louisiana

Geology: The Marlbrook Marl is a uniform, chalky marl that is blue-gray when freshly exposed, and white to light-brown when weathered. This unit is moderately fossiliferous in its upper part, in contrast to the lower part where fossils are few. Common fossils include Exogyra, Gryphaea, and Ostrea oyster species and reptile remains. The lower contact of the formation is thought to be conformable with the Annona Chalk. The Marlbrook Marl varies from 50 to 220 feet in thickness. Original reference: R. T. Hill, 1888, Arkansas Geological Survey Annual Report 1888, v. 2, p. 72, 84-86, 188.

Type locality: Typically exposed about 1 mile north of Saratoga, on road to Mineral Springs, Howard County, Arkansas; also exposed along Marlbrook Creek in T10S, R24W, Hempstead County, Arkansas

SARATOGA CHALK/FORMATION

Age: Late Cretaceous Period, Gulfian Series

Distribution: Gulf Coastal Plain in southwest Arkansas in parts of Clark, Hempstead, and Howard Counties; Louisiana, Texas

Geology: The Saratoga Chalk consists of fossiliferous, hard, sandy, somewhat glauconitic chalk with some beds of marly chalk and chalky sand. It weathers white, light gray and light brown, and is blue-gray when freshly exposed. The common fossils found in the unit include sponges, bryozoa, echinodermata, annelids, bivalves, gastropods, cephalopods, crustaceans, and fish teeth. The formation displays an unconformity at its base, which represents a distinct faunal and lithologic break. The Saratoga Chalk ranges from 20 to 70 feet in thickness.

Original reference: J. C. Branner, 1898, American Institute of Mining Engineers Transactions, v. 27, p. 52-59.

Type locality: Named for exposures north and east of Saratoga in Hempstead and Howard Counties, Arkansas

NACATOCH SAND/FORMATION

Age: Late Cretaceous Period, Gulfian Series

Distribution: Gulf Coastal Plain in southwest Arkansas in parts of Clark, Nevada, and

Hempstead Counties; Louisiana, Texas

Geology: The Nacatoch Sand is composed of cross-bedded, yellowish and gray fine quartz sand; hard, fossiliferous sandy limestone; coarse, highly glauconitic sand; fine-

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grained, argillaceous blue-black sand; bedded light-gray clay and marl. The sands in the Nacatoch are generally unconsolidated. At the base of the unit hard, fossiliferous limestones and marl are present. Near the middle of the unit, a coarse, highly glauconitic lens exists. On outcrop, this lens appears almost black in places and may be up to 60 feet in thickness, but averages closer to 30 feet. Thin-bedded gray clay is present interbedded with fine sands close to the top of the unit. Fossils in the Nacatoch Sand include corals, echinoderms, bryozoa, annelids, bivalves, gastropods, cephalopods, crab remains, and some shark teeth. The Nacatoch Sand has an unconformity at its base. The formation varies in thickness from 150 to 400 feet.

Original reference: A. C. Veatch, 1905, Louisiana Geological Survey Bulletin 1, p. 84-88; and 1905, U. S. Geological Survey Water-Supply Paper 114, p. 180-183.

Type locality: Exposed at Nacatoch Bluff on the Little Missouri River, Clark County, Arkansas

ARKADELPHIA MARL/FORMATION

Age: Late Cretaceous Period, Gulfian Series

Distribution: Gulf Coastal Plain in southwest Arkansas in parts of Clark, Nevada, and Hempstead Counties; Louisiana, Texas

Geology: The Arkadelphia Marl is mostly a dark-gray to black marl or marly clay with some limy, gray sandstone, gray sandy clay, sandy limestone, concretionary limestone, and white to light-brown impure chalk. The sandy marls and limestones are at or near the base of the unit, while the impure chalks are present in the upper part of the formation. (The strata that Hill first applied the name "Arkadelphia" to are no longer considered a part of this unit.) The fossil fauna includes corals, bivalves, gastropods, cephalopods, shark teeth, and various microfossils. The Arkadelphia Marl rests unconformably on the Nacatoch Sand. The formation is 120 to 160 feet in thickness.

Original reference: R. T. Hill, 1888, Arkansas Geological Survey Annual Report 1888, v. 2, p. 53-56, 188.

Type locality: Typical exposures of the Arkadelphia (in its modern sense) are present 5 to 7 miles north and northwest of Hope, between U. S. Interstate 30 and Prescott along Arkansas Highway 19, and in the Oakhaven area

MIDWAY GROUP

Age: Tertiary Period, Paleocene Epoch

Distribution: Central to southwestern Arkansas, in a band of exposure from Cabot to Texarkana; Texas to Georgia, Illinois, Kentucky, Missouri, and Tennessee Geology: The Midway Group sequence exposed in Arkansas represents a marginal marine depositional environment. The lithologies include calcareous shale, arenaceous limestone, calcareous glauconitic sandstone, conglomerate, and light to very dark bluish-gray clay shale. The Midway Group interval is not normally divided into formations in Arkansas; however, various workers have indicated that it is possible to divide the unit into two formations: the lower Clayton Formation and the upper Porters Creek Formation. The Clayton Formation contains most of the calcareous and sandy lithologies, whereas the Porters Creek Formation is chiefly composed of shales and silty shales. The fossils of the Midway Group include a rich fauna of bivalves, gastropods, foraminifera, and ostracods with bryozoa, brachiopods, echinoids, crabs, fish, and crocodile teeth fossils also present. The lower boundary of the Midway Group is unconformable. The thickness ranges from a feather-edge to 130 feet on the outcrop; in the subsurface, the unit is usually much thicker. Original reference: G. D. Harris, 1894, American Journal of Science, 3d, v. 47, p.

303-304; and, 1896, American Paleontology Bulletin, v. 1, n. 4, p. 10-38.

Type locality: Named for exposures at Midway Landing and plantation on west side of the Alabama River (about 5 miles below Prairie Bluff) in Wilcox County, Alabama

WILCOX GROUP

Age: Tertiary Period, Eocene Epoch

Distribution: Central to southwestern Arkansas, in a wide band of exposure from Cabot to Texarkana, along the west side of Crowley's Ridge north of Jonesboro; Texas to Georgia Illinois, Kentucky, Missouri and Tennessee.

Texas to Georgia, Illinois, Kentucky, Missouri, and Tennessee

Geology: The Wilcox Group is a thick series of non-marine sands, silty sands, clays, and gravels with some thick deposits of lignite. In central Arkansas, bauxite is found at the base of the Wilcox near Cretaceous syenite knobs that were positive topographic features during Wilcox time. The sands are generally fine- to very fine-grained and light-gray when fresh. The clays are light-gray or brown and often sandy or silty. Frequently, either lithology will be dark brown to black when enough carbonaceous material is included. The lignites occur throughout the sequence, controlled by depositional environment rather than stratigraphic position. Some workers divide the Wilcox Group of Arkansas into three formations: the Berger, the Saline, and the Detonti Formations. Plant remains and trace fossils, associated with the lignites and lignitic clays, are the most common fossils present. The lower contact of the Wilcox is unconformable with the Midway Group and unconformities occur within the sequence. The thickness of the Wilcox Group ranges from a feather edge to as much as 1,025 feet with 850 feet often reported as average.

Original reference: A F. Crider and L. C. Johnson, 1906, U. S. Geological Survey Water-Supply Paper 159, p. 5, 9; A. F. Crider, 1906, U. S. Geological Survey Bulletin 283.

Type locality: Named for extensive exposures in Wilcox County, Alabama

CLAIBORNE GROUP

Age: Tertiary Period, Eocene Epoch

Distribution: West Gulf Coastal Plain of southern Arkansas and Crowley's Ridge in eastern Arkansas; Gulf Coastal Plain from Georgia to southern Texas

Geology: The Claiborne is chiefly non-marine in origin, but does contain some marine intervals. The unit is composed of medium- to very fine-grained sands, silts, and silty clays. The sands tend to be light- to dark-gray, white, brown, or red, depending on the degree of weathering. The silts and clays are light- to dark-gray and sometimes variegated. Intervals enriched in carbonaceous material are dark-brown to black. The silts are usually clayey and the clays are normally silty or sandy. Lignite beds are present in this interval. Lignite deposition was controlled by the geologic environment. In the subsurface, the Claiborne Group has been divided into the Carrizo Sand, Cane River Formation, Sparta Sand, Cook Mountain Formation, and Cockfield Formation. Fossils include fish and reptile bones and teeth, leaf impressions, lignitic wood, and trace fossils. The lower contact of the Claiborne Group is poorly known, but considered unconformable to the Wilcox Group. The thickness of the Claiborne ranges from a thin edge to 1,500 feet.

Original reference: T. A. Conrad, 1847, Philadelphia Academy of Natural Science Proceedings, v. 3, p. 280-282

Type locality: Named for exposures at Claiborne Bluff and Claiborne Landing on the Alabama River in Monroe County, Alabama

JACKSON GROUP

Age: Tertiary Period, Eocene Epoch (upper)

Distribution: Southeast Arkansas and southern Crowley's Ridge in eastern Arkansas; Gulf Coastal Plain from Georgia to southern Texas

Geology: The Jackson Group is divided into two distinct units in Arkansas: a lower marine unit called the White Bluff Formation and an overlying non-marine unit called the Redfield Formation. The blue-gray to off-white White Bluff Formation has three dominate facies: an argillaceous sand containing glauconite and rich in molluscan fossils, a calcareous glauconitic clay with common invertebrate fossils, and a blocky clay with some silt and a trace of sand and invertebrate (mostly molluscan) molds. The Redfield Formation is typically a sequence of light-gray, thinly laminated silts, silty clays, and silty sands. Crossbedded sands and minor lignite beds are present in the Redfield Formation with plant remains being locally abundant. A minor disconformity occurs at the base of the Jackson Group sequence. The thickness of the Jackson Group may be 300 feet, but no outcrop areas exhibit the entire Arkansas section.

Original reference: T. A. Conrad, 1856, Philadelphia Academy of Natural Science Proceedings, v. 7, p. 257-258; E. W. Hilgard, 1860, Rept. Geology and Agriculture Mississippi, p. 128-135.

Type locality: Named for exposures at Jackson, Mississippi, along the Pearl River and Moodys Branch

SAND AND GRAVEL

Age: Quaternary Period, Pleistocene Epoch (Late Tertiary, Pliocene Epoch?)

Distribution: Crowley's Ridge in eastern Arkansas

Geology: Sands and gravels are present on Crowley's Ridge underlying loess deposits. This interval has not been assigned to a specific stratigraphic unit or studied in detail.

LOESS

Age: Quaternary Period, Pleistocene Epoch
Distribution: Crowley's Ridge in eastern Arkansas

Geology: Although loess undoubtedly occurs in other places, only on the middle and southern portions of Crowley's Ridge is it specifically mapped. It consists of tan, brown, reddish-brown calcareous silt in thin to massive beds. Many workers recognize three separate loess units: an upper thick loess, a middle thin loess, and a lower thick loess. Loess will often hold a high vertical slope. Calcareous concretions are regularly found in the unit. Fossils of pulmonate gastropods are fairly common with fresh water mollusks and proboscidean bones less common. The lower contact of the loess is unconformable with underlying units. The thickness increases from north to south ranging to 140 feet, although 40 to 60 feet is more common at the southern end of Crowley's Ridge.

SILT AND SAND

Age: Quaternary Period, Pleistocene Epoch
Distribution: Crowley's Ridge in eastern Arkansas
Geology: The northern portion of Crowley's Ridge is capped by an interval of unconsolidated silt and sand with lenses of clay and gravel. This unit has never been studied in Arkansas.

DUNE SAND

Age: Quaternary Period, Pleistocene Epoch
Distribution: Mississippi River Embayment in eastern Arkansas
Geology: The sand dunes generally consist of homogeneous, massive, well-sorted, tan

or buff to grayish- or reddish-brown, fine sands. Cross-stratification and bedding features are lacking in the interval, apparently due to extensive weathering and biogenic reworking. These sands are thought to be derived from glacial outwash originally deposited along major drainages during the initial stages of interglacial times. The dunes are best developed on the east sides of the White, Current, and Black Rivers. The dune sand fines with distance from these rivers. Dunes are present on all terrace levels, but not on present-day alluvium. No significant fossils have been discovered associated with these sands. The lower contact seems to be unconformable in most places.

TERRACE DEPOSITS

Age: Quaternary Period, Pleistocene Epoch

Distribution: Eastern and southern Arkansas, Mississippi River Embayment, West

Gulf Coastal Plain

Geology: The terrace deposits include a complex sequence of unconsolidated gravels, sandy gravels, sands, silty sands, silts, clayey silts, and clays. The individual deposits are often lenticular and discontinuous. At least three terrace levels are recognized with the lowest being the youngest. Fossils are rare. The lower contact is unconformable and the thickness is variable.

ALLUVIUM

Age: Quaternary Period, Holocene Epoch

Distribution: State wide

Geology: The deposits consist of alluvial sediments of present streams and include gravels, sands, silts, clays, and mixtures of any and all of these. The partition of this unit from other Holocene alluvial deposits was based more on geomorphic considerations than on lithology or age. Fossils are rare and modern. The lower contact is unconformable and the thickness is variable.

ALLUVIUM (STREAM OVERBANK)

Age: Quaternary Period, Holocene Epoch

Distribution: Eastern Arkansas, Mississippi River Embayment

Geology: The deposits indicated by this notation are alluvial deposits of small streams, the overbank deposits of major streams, or older meander belt deposits of major streams. The partition of this unit from other Holocene alluvial deposits was based more on geomorphic considerations than lithology or age. Fossils are rare. The lower contact is unconformable and the thickness is variable.

ALLUVIUM (CHANNEL MEANDER)

Age: Quaternary Period, Holocene Epoch

Distribution: Eastern Arkansas, Mississippi River Embayment

Geology: This unit represents the more recent channel meanders and current flood plain deposits of significant streams. Channel meander scars are distinct in this unit. The partition of this unit from other Holocene alluvial deposits was based more on geomorphic considerations than lithology or age. Fossils are rare. The lower contact is unconformable and the thickness is variable.

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REFERENCE 4

SOIL SURVE 7

Phillips County Arkansas



UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
and Forest Service
In cooperation with
ARKANSAS AGRICULTURAL EXPERIMENT STATION

Issued November 1974

SOIL SURVEY OF PHILLIPS COUNTY, ARKANSAS

BY JERRY L. HOGAN AND JAMES L. GRAY, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE AND FOREST SERVICE, IN COOPERATION WITH THE ARKANSAS AGRICULTURAL EXPERIMENT STATION

PHILLIPS COUNTY is in the east-central part of Arkansas (fig. 1). It is roughly triangular in shape and has an area of about 465,920 acres, or 728 square miles. It is about 27 miles wide at the northern boundary and about 10 miles wide at the southern boundary. The maximum length is about 37 miles. The northwestern corner is formed by the intersection of the fifth principal meridian and a base line. It was from this point of intersection that the Louisiana Purchase was surveyed.

The county is bounded on the east by channels of the Mississippi River, some of which are now abandoned. To the south is Desha County, to the west are the White River and Monroe County, and to the north is Lee County.

In 1970 the population of the county was 40,046. Helena, the county seat, had a population of 10,415, and West Helena had a population of 11,007. Marvell, with a population of 1,980, and Elaine, with a population of 1,210, are two other important trading centers in the county.

The economy of the county is based on farming. Except for a few manufacturing plants in and near Helena and West Helena, most of the businesses provide farm services.

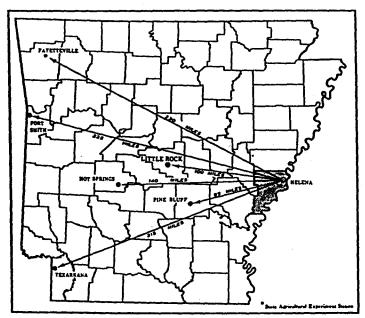


Figure 1.-Location of Phillips County in Arkansas.

General Nature of the County

This section discusses the farming, physiography and drainage, and climate in Phillips County.

Most of the soils in the county contain moderate to high amounts of plant nutrients and are among the most fertile

in the State.

Uplands, where the soils formed in thick layers of windblown sediment, make up about 42 percent of the county. The uplands lie across the northern part of the county. They include the southern end of Crowley Ridge, which is the site of the cities of Helena and West Helena. The part of the St. Francis National Forest in the county also is mainly on Crowley Ridge.

Except for the steep slopes on the Ridge, most of the upland soils are suitable for cultivation or improved pasture. Excess water is a moderate to very severe limitation in the level areas, as is crosion in the more sloping areas.

About 58 percent of the county is bottom land and associated lakes and rivers. This area lies mainly south of a line that runs from Helena on the east, through Trenton, to Connells Point on the west. The soils in this area are suited to farming. Except for a few large wooded tracts, such as that within the White River National Wildlife Refuge along the southwestern side of the county and a few river islands and cutoff points, nearly all the area is cultivated. Excess water, which drains away slowly or is ponded, is a moderate to very severe limitation throughout the area. Erosion is insignificant except in a few places.

The bottom-land area is part of the combined flood plains of the White, Mississippi, and St. Francis Rivers. It was subject to frequent flooding by these rivers until levees were constructed. The last widespread flood occurred in 1937. Since then the White River levee was constructed, and major flooding has been negligible except in the areas between the rivers and their levees and along Big Creek and its tributaries. Even in the areas that are subject to such flooding, which include about 15 percent of the land area, the floods are mainly between January and June. In most years the flooded soils dry early enough

that warm-season crops can be grown.

Elevation above mean sea level in the county ranges from about 380 feet atop Crowley Ridge near the county line on the north to about 140 feet near Steelman Lake in the southwestern part of the county.

arming

Farming in Phillips County began in the better drained arts of the uplands, spread to the higher parts of the itural levees, and then gradually spread to the poorly ained flats. According to the 1969 Census of Agriculte, about 81 percent of the county, or 302,100 acres, is in rms. The rest is woodland, cities and towns, federally lministered land, and transportation and utility facilities.

The early economy of the county was based on the lantation system, and cotton was the main cash crop. arming is still the principal means of livelihood, but opping systems have become more diversified. Since reage allotments were placed on cotton, the importance f that crop has declined. As machinery has replaced vestock as a source of power, corn and other feed crops are also declined in importance. Soybeans and small rain have increased in importance.

Most farming in Phillips County is of a general nature. oybeans, cotton, and wheat are the main crops, and ome rice and grain sorghum are grown. Beef cattle are aised on some farms. Table 1 shows the acreage of prinipal crops in selected years, and table 2 gives the kinds nd numbers of livestock. Over much of the county, use f improved crop varieties, improved drainage outlets, aajor flood control measures on the flood plains, and ther improved management techniques has led to rapid spansion of farming in the wetter areas and to a great eduction in the acreage of woodland.

Farms in Phillips County, as in most of eastern Arcansas, are decreasing in number and increasing in size. Beween 1964 and 1969, the number of farms decreased from .,336 to 981 and the average size increased from 251 acres to 362 acres. Farms of 220 acres or more increased from 324 in 1964 to 346 in 1969. Farms smaller than 220 acres decreased in number. Those of less than 100 acres decreased in number the most—from 837 in 1964 to 483

TABLE 1.—Acreage of principal crops in stated years

Crops	1964	1969
Soybeans (harvested for beans) Cotton Wheat Other small grain (includes rice) Corn (for all purposes) Hay (excludes acreage on levees) Pasture (excludes acreage on levees)	162,885 - 76,093 - 14,157 - 5,050 - 4,202 - 2,171 - 5,841	208, 932 66, 923 1, 713 4, 596 1, 636 1, 916 8, 337

Table 2.—Kinds and numbers of livestock in stated years

Livestock	1964	1969
All cattle and calves Milk cows Hogs and pigs Chickens (more than 3 months old)	10,032 436 3,859 32,712	9,163 202 6,359 13,676

in 1969. Those larger than 1,000 acres increased from 78 to 89. In 1969, 359 farm operators were full owners, 365 were part owners, and 257 were tenants. Of these operators, 419 held jobs off the farm and 255 worked off the farm for 100 days or more.

farm for 100 days or more.

The number of livestock in the county has been decreasing for several years. Most beef cattle are of good grade. Milk cows generally are of poor quality and are kept mainly for home use.

Farm-related enterprises in the county include cotton gins, compresses, and warehouses; seed oil mills; grain and soybean elevators and driers served by railway, truck, and bargeline facilities; fertilizer and farm chemical factories; and farm equipment and supply companies.

Most of the farms are small enough that the family can do most of the work and use outside labor only during peak seasons. The larger farms are operated by laborers supervised by the owner, manager, or tenant. Tenants pay a fixed rent or a percentage of the crop for use of the land. Most of the land is farmed by operators who have sufficient modern equipment to farm efficiently. Most farmers apply fertilizer according to the needs of the crop, and many use chemicals for weed control.

Physiography and Drainage

The geological deposits at the surface of Phillips County are alluvium and loess. Generally, alluvium is in the southern part of the county and loess is in the northern part. These deposits are the parent materials of the soils in the county. The alluvial sediment is more than 200 feet thick over unconsolidated material. The loess is about 5 feet to more than 50 feet thick over unconsolidated old alluvium and coastal plain sediments. Bedrock probably is at a depth of many hundreds of feet through out the county.

The alluvium is a mixture of minerals from throughout the Mississippi River Basin. It was derived from many kinds of soil, rock, and unconsolidated sediments that

came from many States.

The topography of the county can be divided into three main areas. These are the level to gently undulating bottom lands, the moderately steep to steep Crowley Ridge, and the level to moderately sloping upland plain west of Crowley Ridge.

The topography of the bottom lands ranges from broad flats to areas of alternating swales and low ridges. Except along a few streambanks, differences in elevation are minor. Slopes generally are less than 1 percent, but they are as much as 3 percent on the sides of some low ridges.

In the Crowley Ridge area, the topography is characterized by ridges that have narrow, winding tops, short side slopes, and narrow valleys between the ridges. Slopes on the ridges predominantly range from 12 to 40 percent, but along valley drainageways they generally are less than 1 percent.

West of Crowley Ridge, the upland plain is predominantly level to nearly level and slopes are less than 3 percent. Scattered low ridges and escarpments along

drainageways have slopes of 3 to 12 percent.

The drainage in the county generally is southwestward through a system of natural and improved drainageways

and connecting artificial channels. A small area in the northeastern corner drains southeastward. The county is well supplied with drainageways and lakes. The major natural drainageways are the Mississippi, St. Francis, and White Rivers; Porter, Beaver, Johnson, Long Lake, Cypress, Yellow Bank. Gauzley. and Little Bee Bayous;

and Big. Lick, and Little Cypress Creeks.

Big Creek, Lick Creek, and Little Cypress Creek drain the northern part of the county. Long Lake, Beaver, and Johnson Bayous drain the central part of the county and empty by way of Big Creek into the White River. Porter Bayou and the St. Francis River drain the northeastern part of the county and empty into the Mississippi River. Cypress, Yellow Bank, Gauzley, and Little Bee Bayous drain the southern part of the county. Their waters are pumped, or pass through levee floodgates, into the White River. Thus, most of the county drains into the White River, but the northeastern corner and a narrow strip between the Mississippi River and its levee drain into the Mississippi River.

The many streams, as well as lakes such as Storm Creek, Porter, Old Town, Old River, and others, furnish abundant surface water for recreation, farming, and industry. The supply of ground water is also abundant. Wells 10 inches in diameter, drilled to a depth of about 120 feet, furnish an unfailing flow of water of good to fair quality at a rate of about 1,500 to 1,800 gallons per minute.

Climate ¹

Phillips County lies between the White and Mississippi Rivers in east-central Arkansas. The county is nearly level except for a small area in the northeastern corner. and large hilly areas are too distant to have a noticeable effect on the climate of the county. The relatively treeless, predominantly cultivated countryside offers little hindrance to windflow, and surface windspeed may be somewhat greater than in more rugged, wooded terrain. Table 3 gives a summary of temperature and precipitation data recorded at Helena, which are representative for the

The climate of Phillips County, like all of Arkansas, is one of generally warm summers and mild winters. Although there are periods of arctic weather, these cold fronts generally are of short duration, and winters are relatively free of severe cold and snow. Outdoor work

can be done during much of the winter.

The most abrupt and violent weather changes are in spring. Strong frontal passages are often accompanied

by turbulent weather and high-intensity rains.

Summers are long, warm, and highly humid because of the moisture brought in from the Gulf of Mexico. Evaporation from the streams, lakes, and marshes, and flooded ricefields contributes to the high humidity. Annual average relative humidity is about 70 percent. Uncomfortably high temperatures and humidity are likely from mid-May to mid-September.

In fall, days are warm and nights are cool. This is the driest and least humid season and is commonly the most pleasant. Prewinter cold fronts and sharp drops in temperature occur late in October and in November, but these generally are not accompanied by significant turbulence as are the front passages in spring. Dry airmasses are most likely in fall, when the day-to-night temperature range is the greatest.

The county has a wide range of temperature extremes.

Table 3.—Temperature and precipitation [Data from Helena, Arkansas; period of record, 1941-70]

	Temperature			Precipitation			
Month	daily	Average	Two years in 10 will have at least 4 days with—			One year in 10 will have—	
		daily minimum	Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—	Average total	Less than—	More than—
January February March April May June July August September October November December Year	* F. 51. 0 54. 9 62. 5 74. 0 81. 9 89. 1 91. 7 90. 9 85. 2 76. 3 63. 2 53. 2 72. 8	* F. 32. 2 34. 9 41. 4 52. 3 60. 3 67. 9 70. 7 69. 2 62. 4 50. 9 40. 7 34. 1 51. 4	*F. 76 77 83 88 94 99 100 102 98 90 81 76	• F. 6 13 20 32 42 53 56 56 45 31 20 13	Inches 4. 72 4. 84 5. 43 5. 30 4. 18 3. 23 3. 73 3. 07 3. 27 2. 91 4. 09 4. 82 49. 59	Inches 1. 60 2. 21 2. 70 2. 86 1. 21 . 44 . 91 . 56 1. 16 . 69 1. 86 2. 05	9. 22 7. 62 8. 26 8. 34 8. 20 6. 43 5. 61 6. 12 6. 23 5. 71 7. 59 7. 61

¹ Robert O. Reinhold, climatologist for Arkansas, National Weather Service, U.S. Department of Commerce, prepared this subsection.

Convent Series

The Convent series consists of somewhat poorly drained, level soils on young natural levees and on alluvial fans at the foot of Crowley Ridge. These soils formed in stratified beds of loamy sediments.

In a representative profile, the surface layer is dark grayish-brown silt loam about 7 inches thick. The material beneath is stratified layers of grayish-brown, dark-

gray, and gray, mottled silt loam.

Convent soils are high in natural fertility. Content of organic matter is medium to low. Permeability is moderate, and the available water capacity is high. These soils respond well to fertilizer, and good tilth is easy to maintain. In places a plowpan has formed beneath the plow layer. This pan restricts penetration of roots and movement of water through the soil.

These soils are suited to most crops commonly grown in the county. About half of the acreage is cultivated. The rest is within built-up areas or within the St. Francis

National Forest.

Representative profile of Convent silt loam in a moist, cultivated area in SE1/4NW1/4NE1/4 sec. 10, T. 2 S.,

Ap-0 to 7 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; friable; many fine roots; neutral; abrupt, smooth boundary.

C1-7 to 21 inches, grayish-brown (10YR 5/2) silt loam; many, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, coarse, platy structure; friable; common bedding planes; common fine roots; common pores; moderately alkaline; gradual, smooth boundary.

C2-21 to 41 inches, grayish-brown (10YR 5/2) silt loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, coarse, platy structure; frinble; common bedding planes; few fine roots; common pores; few, fine, black concretions; mildly alkaline; abrupt, smooth boundary.

C3-41 to 56 inches, grayish-brown (10XR 5/2) silt loam; common, fine, distinct, yellowish-brown mottles; weak, medium, platy structure; friable; many bedding planes; mildly alkaline; abrupt, smooth boundary. C4g-56 to 65 inches, dark-gray (10YR 4/1) silt loam; many,

fine. prominent, yellowish-red mottles; weak, coarse, platy structure; friable; common bedding planes; common pores; neutral; abrupt, smooth boundary.

C5g-65 to 73 inches, gray (10YR 5/1) silt loam; many, fine, prominent, yellowish-red mottles; weak, coarse, platy structure; friable, few bedding planes; common pores; few, fine, black concretions; neutral.

The A horizon is dark grayish brown to brown. The upper part of the C horizon is dark grayish-brown or grayish-brown, thinly stratified silt loam to fine sandy loam. The Cg horizon is light brownish gray to dark gray. Reaction ranges from neutral to moderately alkaline throughout the profile.

Convent soils are chiefly associated with Falaya and Jeanerette soils. They are neutral to moderately alkaline in reaction throughout the profile, whereas the Falaya soils have a thick A horizon that is strongly acid or very strongly acid. They contain less clay, have a lighter-colored A horizon, and are better drained than the Jeanerette soils.

Convent silt loam (Co).—This soil is on young natural levees and on alluvial fans at the foot of Crowley Ridge. Individual areas range from about 50 to 200 acres in size. Slope is less than 1 percent. Included in mapping were small spots of Falaya and Jeanerette soils.

This soil is well suited to farming. Water on the surface early in spring may delay planting. Clean-tilled crops that leave a large amount of residue can be safely

grown year after year if this soil is adequately drained

and other good management is used.

The main crops are soybeans and cotton. Corn, grain sorghum, alfalfa, winter small grain, and such truck crops as okra, green beans, and tomatoes also are suited. Suitable pasture plants are bermudagrass, tall fescue, and white clover. (Capability unit IIw-1; woodland group 1w5)

Crevasse Series

The Crevasse series consists of excessively drained, level to gently undulating soils at the highest elevations on natural levees. These soils formed in sandy sediments.

In a representative profile, the surface layer is dark grayish-brown fine sand about 8 inches thick. Beneath are stratified layers of grayish-brown and dark grayish-brown fine sand and loamy fine sand.

Crevasse soils are low in natural fertility, and the content of organic matter is low. Permeability is rapid. The available water capacity is low. These soils respond moderately well to fertilizer, and good tilth is easy to maintain. They warm early in spring and can be planted early, but they are droughty and subject to flooding.

These soils are poorly suited to farming, and only

about half of the acreage is cultivated.

Representative profile of a Crevasse fine sand in a moist, cultivated area of Crevasse soils, frequently flooded, on Island No. 64 (survey incomplete; approximate location, by extension of existing section lines, is NW1/4NE1/4NW1/4 sec. 25, T. 5 S., R. 2 E.):

Ap-0 to 8 inches, dark grayish-brown (10YR 4/2) fine sand; single grain; loose; many fine roots; slightly acid;

abrupt, smooth boundary.

C1-8 to 17 inches, grayish-brown (10YR 5/2) fine sand; single grain; loose; common fine roots; common lenses of dark grayish-brown (10YR 4/2) loamy fine sand about 1/2 inch thick; mildly alkaline; abrupt, smooth boundary.

C2-17 to 51 inches, grayish-brown (10YR 5/2) fine sand; single grain to weak, platy structure; loose; few fine roots; many lenses of dark grayish-brown (10YR 4/2) loamy fine sand about 1/3 inch thick; mildly

alkaline; clear, smooth boundary. C3-51 to 64 inches, dark grayish-brown (10YR 4/2) loamy fine sand; common, medium, distinct, light brownishgray (10YR 6/2) mottles; massive; loose; few fine roots; mildly alkaline.

The Ap horizon is dark grayish-brown or dark-brown loamy sand to fine sand. The C horizon is dark grayish-brown. brown, or yellowish-brown loamy fine sand to fine sand. Reaction ranges from slightly acid to moderately alkaline throughout the profile.

Crevasse soils are chiefly associated with Robinsonville and Commerce soils, but they are coarser textured and better

drained than those soils.

Crevasse soils, frequently flooded (Cr).—This undifferentiated group consists of level to gently undulating soils at the higher elevations bordering the Mississippi River. Generally, the soils are in areas where long, narrow depressions alternate with low ridges that rise 3 to 8 feet above the swales. Slope is less than 3 percent. These soils are in areas 10 to 100 acres in size between the levee and the Mississippi River. They are flooded for periods of 3 to 95 days, generally between January and June. Floods occur on an average of about once every 2 years. The surface layer ranges from loamy sand to fine sand. medium. distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; common fine roots; common pores; common, fine, black concretions; strongly acid; clear, smooth boundary.

A22g-19 to 25 inches, gray (10YR 6/1) silt loam; common, medium. distinct, brown (10YR 5/3) mottles; moderate. medium subangular blocky structure; friable; common fine roots; common pores; few, fine, black concretions; strongly acid; clear, smooth boundary.

Bx1-25 to 33 inches, gray (10YR 6/1) silty clay loam; few, medium and fine, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium prismatic structure parting to weak, medium, subangular blocky; firm, brittle; common clay films on faces of peds; gray silt in seams between prisms and on faces of peds; common pores; few, fine, black concretions; very strongly acid; clear, smooth boundary.

cretions; very strongly acid; clear, smooth boundary. Bx2-33 to 49 inches, light brownish-gray (10YR 6/2) silty clay loam; few, fine, distinct, light olive-brown mottles; moderate, medium, subangular blocky structure; firm, brittle; patchy clay films on faces of peds; common pores; common, fine and medium, black concretions; very strongly acid; clear, smooth boundary.

B3g—49 to 60 inches, light olive-gray (5Y 6/2) silt loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles and common, fine, distinct, brown mottles; weak, coarse, subangular blocky structure; friable; common pores; common, fine, black concretions; strongly acid; clear, smooth boundary.

Cg-60 to 74 inches. light brownish-gray (2.5Y 6/2) silt loam; few, medium. distinct, yellowish-brown (10YR 5/6) and dark yellowish-brown (10YR 4/4) mottles; massive; friable; common, fine, black concretions; slightly acid.

The Ap or A1 horizon is dark gray to brown. The A2g horizon is gray or light brownish gray. The Bx horizon is gray, light olive gray, or light brownish gray. The B3g horizon is silt loam or silty clay loam and has the same range of colors as the Bx horizon. The Ap or A1 horizon is slightly acid to very strongly acid. the A2 and B horizons are very strongly acid or strongly acid, and the C horizon is very strongly acid to mildly alkaline.

Henry soils are chiefly associated with Calhoun, Calloway, Falaya, Jeanerette. Lagrange, and Zachary soils. They have a fragipan that the Calhoun, Falaya, Jeanerette, Lagrange, and Zachary soils lack. Henry soils are grayer than the Calloway soils and lack an A'2 horizon that Calloway soils have. They are more poorly drained than Falaya soils and have an A horizon of higher color value than Jeanerette soils. They are finer textured in the A horizon and the upper part of the B horizon than the Lagrange soils.

Henry silt loam (He).—This poorly drained soil is on broad, upland flats and in depressions. Individual areas range from 20 to 300 acres in size. Slope is less than 1 percent. Included in mapping were spots of Calhoun, Calloway, Falaya, and Zachary soils.

This soil is suited to farming, but wetness is a severe

This soil is suited to farming, but wetness is a severe limitation. Fieldwork is delayed several days after a rain unless surface drains are installed. Clean-tilled crops that leave a large amount of residue can be safely grown year after year if this soil is adequately drained and other good management is used.

The main crops are soybeans and cotton. Grain sorghum also is suited, and winter small grain can be grown if surface drainage is adequate. Suitable pasture plants are bermudagrass, tall fescue, and white clover. (Capability unit IIIw-3; woodland group 3w9)

Jeanerette Series

The Jeanerette series consists of poorly drained soils in level to slightly depressional areas on uplands. These

soils formed in sediments that are similar to loess but

are of uncertain origin.

In a representative profile, the surface layer is silt loam about 16 inches thick. The upper 4 inches is very dark grayish-brown, and the lower 12 inches is black. The upper part of the subsoil is light brownish-gray, mottled silty clay loam about 27 inches thick, and the lower part is light brownish-gray, mottled silt loam about 17 inches thick. The material beneath is gray, mottled silt loam.

Jeancrette soils are moderate to high in natural fertility. Content of organic matter is high. Permeability is moderately slow, and the available water capacity is high. In places a plowpan has formed beneath the plow layer. This pan restricts penetration of roots and movement of water through the soil.

If these soils are adequately drained and well managed, they are suited to most crops commonly grown in the

county. Nearly all of the acreage is cultivated.

Representative profile of Jeanerette silt loam in a moist, cultivated area in SW14NE14NE14 sec. 4. T. 2 S., R. 3 E.:

Ap-0 to 4 inches, very dark grayish-brown (10YR 3/2) silt loam; weak, fine, granular structure; friable; many fine roots; few, fine. black concretions; medium acid; abrupt, smooth boundary.

A12-4 to 16 inches, black (10YR 2/1) silt loam; weak, fine, granular structure; firm; common fine roots; common, fine, black concretions; slightly acid; gradual,

smooth boundary.

B21tg—16 to 28 inches, light brownish-gray (2.5Y 6/2) silty clay loam; common. fine, distinct, yellowish-brown mottles; moderate, fine to medium, subangular blocky structure; firm; patchy dark-gray (10YR 4/1) clay films on faces of peds; common. fine, dark concretions; mildly alkaline; gradual, smooth boundary.

B22tg—28 to 43 inches, light brownish-gray (2.5\times 6/2) silty clay loam; common. fine, distinct, yellowish-brown mottles; moderate, medium, subangular blocky structure; firm; patchy clay films on faces of peds; common pores; common, medium and fine, calcium carbonate nodules; moderately alkaline, noncalcareous; gradual, smooth boundary.

B3g-43 to 60 inches, light brownish-gray (2.5Y 6/2) silt loam; common, fine, distinct, yellowish-brown mottles; moderate, medium, subangular blocky structure; friable; common pores; common, medium and fine, calcium carbonate nodules; moderately alkaline, noncalcareous; gradual, smooth boundary.

Cg-60 to 72 inches, gray (N 6/0) silt loam: common, medium, distinct, yellowish-brown (10YR 5/6) mottles;

massive; friable; moderately alkaline.

The Ap horizon is very dark grayish brown or black. The A12 horizon is black, very dark gray, or very dark grayish brown. The B horizon is dark-gray to light brownish-gray silt loam or silty clay loam. The C horizon has a range of color similar to that of the B horizon. The A horizon is medium acid to neutral, and the B and C horizons are neutral to moderately alkaline.

About 60 percent of this soil has slightly lighter colors in the A and upper B horizons than the defined range of the series, but this difference does not alter its usefulness and

behavior.

Jeanerette soils are chiefly associated with the Henry soils. They have a thicker A1 horizon that is lower in color value than that of the Henry soils, and they lack the fragipan that the Henry soils have.

Jeanerette silt loam (Je).—This soil is in slight depressions on uplands. Individual areas range from 15 to 80 acres in size. Slope is less than 1 percent. Included in mapping were spots of soil that has a dark-brown surface layer and spots of Henry soils.

This soil is suited to farming. Wetness is a moderate hazard, and fieldwork can be delayed several days after a rain unless surface drains are installed. Clean-tilled crops that leave a large amount of residue can be safely grown year after year if this soil is adequately drained and other good management is used.

The main crops are cotton and soybeans. Corn, grain sorghum, and winter small grain also are suited. Suitable pasture plants are bermudagrass, tall fescue, and white clover. (Capability unit IIw-1; woodland group 2w6)

Lagrange Series

The Lagrange series consists of poorly drained, level soils on flood plains. These soils formed in moderately thick, loamy deposits that have a high content of sand and are underlain by thick, loamy deposits that have a

high content of silt.

In a representative profile, the surface layer is dark yellowish-brown fine sandy loam about 6 inches thick. The upper part of the subsoil is light brownish-gray, mottled fine sandy loam about 19 inches thick, the middle part is gray, mottled fine sandy loam about 8 inches thick, and the lower part is light brownish-gray, mottled silt loam that extends to a depth of about 64 inches. The material beneath is light brownish-gray, mottled silt loam.

Lagrange soils are low in natural fertility. Content of organic matter is low. Permeability is moderately slow, and the available water capacity is moderate. These soils respond well to fertilizer, and good tilth is easy to maintain. In places a plowpan has formed beneath the plow layer. This pan restricts penetration of roots and move-

ment of water through the soil.

These soils are suited to most crops commonly grown in the county. Nearly all of the acreage is cultivated.

Representative profile of Lagrange fine sandy loam in a moist, cultivated area in SE1/4SE1/4NE1/4 sec. 3, T. 1 S., R. 3 E.:

Ap-0 to 6 inches, dark yellowish-brown (10YR 4/4) fine sandy loam; weak, fine, granular structure; friable; many fine roots; very strongly acid; abrupt, smooth boundary.

B11g-6 to 25 inches, light brownish-gray (10YR 6/2) fine sandy loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, coarse, subangular blocky structure; friable; common fine roots; very strongly acid; clear, smooth boundary,

B12g-25 to 33 inches, gray (10YR 6/1) fine sandy loam; common, medium, distinct, yellowish-brown (10YR 5/4) mottles; weak, coarse, subangular blocky structure; very friable; few fine roots; very strongly acid;

abrupt, wavy boundary.

IIB21tg-33 to 47 inches, light brownish-gray (2.5Y 6/2) silt loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; friable; patchy clay films on faces of peds and in pores; few fine roots; common pores; common, fine, dark concretions; very strongly acid; clear, smooth boundary.

IIB22tg-47 to 64 inches, light brownish-gray (10YR 6/2) silt loam; many, medium, distinct, yellowish-brown (10YR 5/4) mottles and dark yellowish-brown (10YR 4/4) mottles; moderate, medium, subangular blocky structure; firm; patchy clay films on faces of peds and in pores; common pores; common, fine and medium, dark concretions; very strongly acid; clear, smooth boundary

IICg-64 to 72 inches, light brownish-gray (10YR 6/2) silt loam; common, medium, distinct, dark yellowishbrown (10YR 4/4) mottles; massive; friable; many, medium, dark concretions; strongly acid.

The A horizon is dark yellowish brown, brown, or dark grayish brown. The B1 horizon is light brownish-gray or gray fine sandy loam or sandy loam mottled with brown, yellowish brown, or dark yellowish brown. The IIB and IIC horizons are light brownish gray, light gray, or gray. The A horizon is slightly acid to very strongly acid, and the B and C horizons are strongly acid or very strongly acid.

Lagrange soils are chiefly associated with Henry and Marvell soils. They are coarse-textured in the A horizon and upper part of the B horizon than Henry soils. They are more poorly drained and grayer than Marvell soils.

Lagrange fine sandy loam (la).—This soil is on flood plains. Individual areas range from about 10 to 80 acres in size. Slope is less than 1 percent. Included in mapping were spots of Henry and Marvell soils.

This soil is suited to farming, but wetness is a severe limitation. Fieldwork is delayed several days after a rain unless surface drains are installed. Clean-tilled crops that leave a large amount of residue can be safely grown year after year if this soil is adequately drained and other

good management is used.

The main crops are soybeans and cotton. Grain sorghum also is suited, and winter small grain can be grown if surface drainage is adequate. Suitable pasture plants are bermudagrass, tall fescue, and white clover. (Capability unit IIIw-2; woodland group 2w9)

Loring Series

The Loring series consists of moderately well drained, nearly level to gently sloping soils on uplands. These soils

formed in thick deposits of loess.

In a representative profile, the surface layer is brown silt loam about 5 inches thick. The upper 4 inches of the subsoil is dark-brown silt loam, and the middle part is dark-brown silty clay loam about 17 inches thick. The lower part is a dark-brown, mottled, brittle, silt loam fragipan about 26 inches thick. The material beneath is dark-brown, mottled silt loam.

Loring soils are moderate in natural fertility. Content of organic matter is low. Permeability is moderately slow, and the available water capacity is moderate. These soils respond well to fertilizer, and good tilth is easy to maintain. The fragipan restricts the penetration of roots and movement of water but does not seriously affect soil productivity or restrict the suitability of the soils for plants. These soils are susceptible to erosion.

These soils are suited to crops commonly grown in the

county. Nearly all of the acreage is cultivated.

Representative profile of Loring silt loam, 1 to 3 percent slopes, in a moist, cultivated area in SW1/4NE1/4SE1/4 sec. 2, T. 2 S., R. 3 E.:

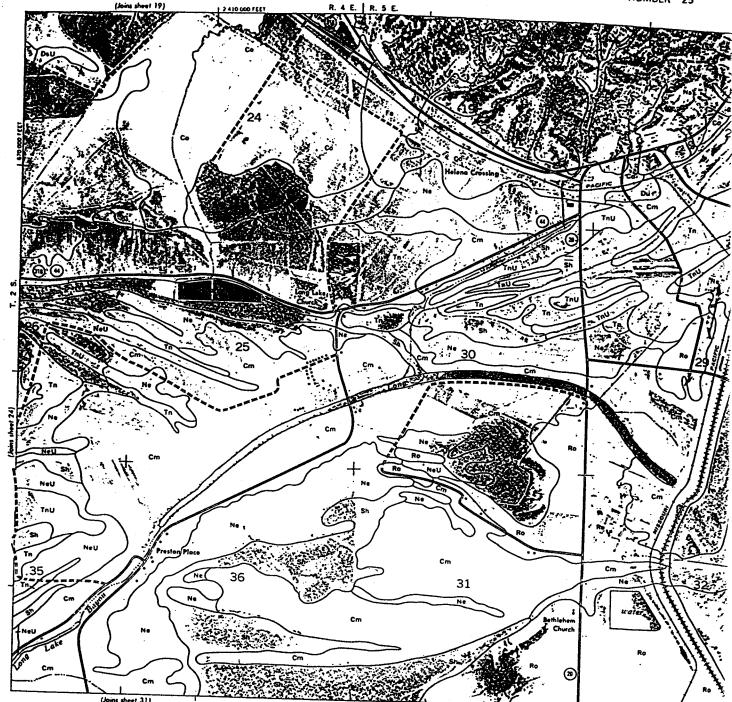
Ap-0 to 5 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable; many fine roots; strongly acid; abrupt, smooth boundary.

B1—5 to 9 inches, dark-brown (7.5XR 4/4) silt loam; mod-

erate, medium, subangular blocky structure; friable; common fine roots; few pores; very strongly acid; clear, smooth boundary.

B2t-9 to 26 inches, dark-brown (7.5YR 4/4) silty clay loam; moderate, medium and fine, subangular blocky structure; firm; continuous clay films on faces of peds; few fine roots; common pores; very strongly acid; clear, smooth boundary.

Bx1-26 to 32 inches, dark-brown (7.5YR 4/4) silt loam; common, medium, distinct, light brownish-gray



7.4

REFERENCE 5

S+HW

STATE OF ARKANSAS

ARKANSAS GEOLOGICAL COMMISSION

Norman F. Williams, State Geologist

WATER RESOURCES CIRCULAR NO. 13

Alluvial Aquifer of the Cache and St. Francis River Basins

Northeastern Arkansas

By

M. E. Broom and F. P. Lyford U. S. GEOLOGICAL SURVEY



Prepared by the U. S. Geological Survey in cooperation with the Arkansas Geological Commission Little Rock, Arkansas

1982

(This publication is a reprint of U. S. Geological Survey Open File Report 81-476)

ALLUVIAL AQUIFER OF THE CACHE AND ST. FRANCIS RIVER BASINS, NORTHEASTERN ARKANSAS

By M. E. Broom and F. P. Lyford

ABSTRACT

The alluvial aquifer underlies about 9,000 square miles of the study area. Formations of Tertiary age crop out in the alluvial plain in Crowleys Ridge, dividing the aquifer into a segment on the western side of the ridge that underlies the Cache River basin and a segment on the eastern side of the ridge that underlies the St. Francis River basin.

The aquifer is composed of sand and gravel. Maximum aquifer thickness west of Crowleys Ridge is about 150 feet and east of Crowleys Ridge, about 200 feet. Hydraulic conductivity ranges from 100 to 400 feet per day.

Well yields from the aquifer commonly range from 1,000 to 2,000 gallons per minute. Maximum specific capacity of the wells is about 100 galgallons per minute per foot of drawdown.

The natural direction of flow in the aquifer has been greatly altered by intensive pumping for rice irrigation in the area between the Cache River and Crowleys Ridge. Flow toward the pumping-stressed area is eastward from the Cache River and westward from the St. Francis River. The Memphis aquifer acts as a conduit through Crowleys Ridge for induced flow from the St. Francis River basin to the Cache River basin.

Most pumpage from the alluvial aquifer in the study area since the early 1900's has been for rice irrigation. Total pumpage for rice in the study area during 1978 was about 1,650,000 acre-feet, of which about 88 percent was pumped from the aquifer west of Crowleys Ridge.

Water levels in wells west of the ridge in parts of Poinsett, Cross, and Craighead Counties during 1978 were 75 feet below land surface and declining about 2 feet per year. Water levels outside the pumping-stressed area, including all the area east of Crowleys Ridge, were less than 20 feet below land surface.

The aquifer yields a calcium bicarbonate type water that has dissolved-solids concentrations of 200 to 400 milligrams per liter in most of the area. A sodium chloride type water with chloride concentrations of about 700 milligrams per liter is pumped from the aquifer at a locale west of the Black River in Independence County and at a locale near Brinkley in Monroe County. A southerly migration of the chloride water from near Brinkley is indicated by its pattern of distribution in the aquifer.

Digital-model analysis indicated that at the end of 1978 water was being removed from aquifer storage at the rate of 540,000 acre-feet per year, and streamflow, about one-half from the Cache River, was being captured at the rate of 430,000 acre-feet per year.

Projecting the 1978 pumping rate of 1,460,000 acre-feet per year, the pumping rate would have to be reduced by about 110,000 acre-feet per year by 1990 to sustain sufficient aquifer saturation for water needs through 2000 in all parts of Poinsett, Craighead, and Cross Counties west of Crow-leys Ridge.

At the reduced pumping rate of 1,350,000 acre-feet per year, beginning in 1991, saturated thickness of the aquifer west of Crowleys Ridge by the end of 2000 would be less than 50 feet in most of Poinsett and Craighead Counties and a substantial part of Cross County; the rate of water removal from aquifer storage would be about 490,000 acre-feet per year, and the rate of streamflow capture would be about 860,000 acre-feet per year.

INTRODUCTION

The study area, in northeast Arkansas (fig. 1), includes about 9,000 square miles of the Mississippi Alluvial Plain and, peripherally, about 2,000 square miles of the Springfield-Salem Plateaus. The plateaus are discussed in this report only to establish boundary conditions near the juncture of the alluvial plain and the plateaus.

The study, in cooperation with the Arkansas Geological Commission, was made to provide information for planning, developing, and managing the water resources of the area. The study consisted of two phases. The first phase involved the collection and analysis of data to gain a concept of the aquifer's geometry and hydrologic properties, the location and nature of its recharge and discharge boundaries, and its relation to streams and to other aquifers. The second phase of work involved a simulation of the aquifer by a digital model that would provide estimates of response to pumping stress on the aquifer.

The study was enhanced greatly by data provided by well drillers, municipalities, and industries. The study would have been nearly impossible without the cooperation of the many farmers throughout the area who provided access to property and wells for measuring water levels, making aquifer tests, and drilling test holes.

DESCRIPTION OF THE AREA

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11

16

The alluvial plain slopes southward from an altitude of about 300 feet near the State line in Clay County to an altitude of about 150 feet near the confluence of the White and Mississippi Rivers in Desha County (pl. 1). The plain has little surface relief except at boundaries of stream flood plains and terraces, and at locally occurring sandhills and ridges in the western part of the plain.

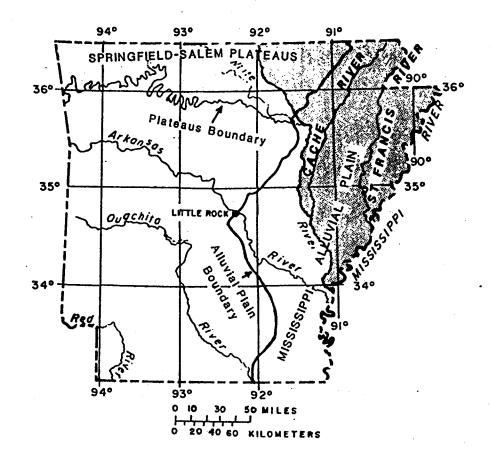


Figure 1.-Location of study area (shaded).

The greatest relief on the plain, as much as 300 feet, is at Crowleys Ridge. The ridge trends across the plain in a north-south arc, nearly bisecting the plain from Clay to Phillips County. The width of the ridge ranges from 1 to 12 miles, and altitudes along its crest commonly are 400 to 500 feet, with a maximum of about 560 feet in Greene County. Except for a breach along the course of the L'Anguille River in Lee County, the ridge is continuous from Clay County to its terminus in Phillips County.

The area in the Springfield-Salem Plateaus provides a variable terrain of rolling hills and steeply sloping valleys and ridges. The plateaus slope southeastward from an altitude of about 1,000 feet in Fulton County to an altitude of about 300 feet at the alluvial plain.

Normal annual precipitation in the area, based on an 84-year National Weather Service record at Jonesboro (Craighead County), through 1978, is 48.43 inches. Normal monthly precipitation is fairly uniform throughout the year, ranging from a minimum of 3.15 inches during August to a maximum of 5.07 inches during March. Normal annual temperature for the area is about 60°F (16°C). Normal monthly temperatures range from a low of 39°F (4°C) in January to a high of 80°F (27°C) in July.

The plain east of Crowleys Ridge is drained by the St. Francis River, tributary to the Mississippi River. In addition, a part of the plain west of the ridge drains to the St. Francis by way of the L'Anguille River through the breach in Crowleys Ridge (pl. 1). The rest of the plain west of Crowleys Ridge is drained by tributaries to the White River, including the Cache and Black Rivers and Big Creek. The plateaus area is drained primarily by the Spring and Strawberry Rivers, which are tributaries to the Black River.

The drainage system in the alluvial plain has undergone considerable alteration during the last 50 years or more by drainage-improvement projects for flood control and the conversion of hardwood-forested wetlands to highly productive farmlands for cotton, soybeans, and rice. Drainage improvements include deepening and straightening of sluggish and meandering streams, and construction of levees and ditches. To date (1980), practically all the drainage system is at least indirectly affected by drainage improvement, although forested wetlands still exist in some flood-plain areas.

GEOHYDROLOGY

Geologic units in the study area (pl. 1) are mostly on the western flank of the Mississippi embayment, a structural trough whose axis trends along the Mississippi River. From the Springfield-Salem Plateaus, the pre-Quaternary units dip toward the embayment axis and are overlain by successively younger units in the dip direction. In the alluvial plain, the pre-Quaternary units, ranging in age from Ordovician to Tertiary, are truncated and blanketed by Quaternary alluvium, except on Crowleys Ridge where Tertiary units crop out or are capped by older Quaternary deposits.

The structural and stratigraphic relation of the alluvial aquifer to adjacent geohydrologic units is shown in geohydrologic sections of plate 2. The control for the sections was provided by geophysical and lithological logs of test holes (table 1). The vertical scale of the sections is greatly exaggerated, distorting the slope of the land surface in the Crowleys Ridge area and the dip of the pre-Quaternary units. The dip of the pre-Quaternary units is only about 40 feet per mile.

Although extensively used at Memphis, Tenn., across the Mississippi River from Crittenden County (pl. 1), the Memphis aquifer in the study area is used little for water supply. The aquifer yields as much as 500 gallons per minute of water to wells in area 6. In Mississippi and Crittender Counties, the aquifer probably would yield as much as 1,000 gallons per minute to wells. The water in the Memphis aquifer in area 6, is a calcium bicarbonate type with dissolved solids ranging from 200 to 500 milligrams per liter.

Jackson-Claiborne Clay

The Jackson-Claiborne clay directly underlies the alluvial aquifer in area 7 (pl. 1) and crops out on Crowleys Ridge in Cross, St. Francis, Lee and Phillips Counties. This geohydrologic unit reaches a maximum thickness of about 500 feet. It contains the Jackson Group, mostly a dense clay, and the upper part of the Claiborne Group, a silty clay with some interbedding of thin and discontinuous beds of sand. The Jackson-Claiborne clay act as a confining bed under the alluvial aquifer.

Crowleys Ridge Deposits

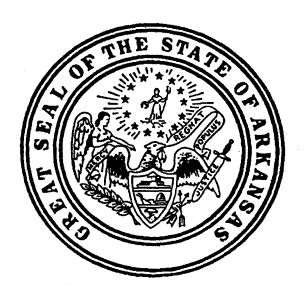
The Crowleys Ridge deposits, as a geohydrologic unit, include all Quaternary sediments on Crowleys Ridge. The sediments generally consist c clay, silt, sand, and gravel of fluvial origin. The sediments also in clude wind-deposited silt and sand (loess) in the uppermost part of the unit along the ridge from Poinsett to Phillips Counties.

The Crowleys Ridge deposits where saturated are used for domestic wate supplies. The water generally contains less than 100 milligrams per lite of dissolved solids.

REFERENCE 6

Arkansas Pollution Control and Ecology Commission

Regulation 2



Regulation Establishing
Water Quality Standards for Surface Waters
of the State of Arkansas

APRIL 1998

DESIGNATED USES: DELTA ECOREGION

(Plates D-1, D-2, D-3, D-4)

Extraordinary Resource Waters

Second Creek (D-4)
Cache River above Cache Bayou - adjacent to natural areas (D-3)
Arkansas River below Dam #2 (D-5)
Strawberry River (D-1)
Two Prairie Bayou adjacent to natural areas (D-3)

Natural and Scenic Waterways

None

Ecologically Sensitive Waterbodies

Lower St. Francis River and lower 10 miles of Straight Slough - location of fat pocketbook mussel (D-2, D-4) Right Hand Chute at confluence with St. Francis River - location of fat pocketbook mussel (D-2) Departee Creek - location of flat floater mussel (D-1) Black River at mouth of Spring River - location of pink mucket mussel (D-1)

Primary Contact Recreation - all streams with watersheds of greater than 10 mr and all lakes/reservoirs

Secondary Contact Recreation - all waters

Domestic, Industrial and Agricultural Water Supply - all waters

Fisheries

Trout - none

Lakes and Reservoirs - all

Streams

Seasonal Delta fishery - all streams with watersheds of less than 10 mi except as otherwise provided in §2.505

Perennial Delta fishery - all streams with watersheds 10 mi or larger and those waters where discharges equal or exceed 1

CFS

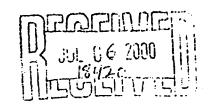
Use Variation Supported by UAA

Unnamed ditch to Little Lagrue Bayou - perennial Delta fishery (D-3, #1)
Little Lake Bayou - seasonal Delta fishery; no primary contact (D-5, #2)
Coon Creek and unnamed tributary from Frit Ind. - no domestic water supply use (D-1,#3)

REFERENCE 7



The Department of Arkansas Heritage



MEMORANDUM

Mike Huckabee, Governor Cathie Matthews, Director

Arkansas Arts Council

Arkansas Historic Preservation Program

Arkansas Territorial Restoration

Delta Cultural Center

Old State House Museum



Arkansas Natural Heritage Commission

1500 Tower Building 323 Center Street Little Rock, AR 72201 (501) 324-9619 fax: (501) 324-9618 tdd: (501) 324-9811 e-mail: info@dah.state.ar.us website: http://naturalheritage.com

An Equal Opportunity Employer

To: William Penn, Hazardous Waste Inspector

Arkansas Department of Environmental Quality

From: Cindy Osborne, Data Manager (m) During Arkansas Natural VI

Arkansas Natural Heritage Commission

Date: July 3, 2000

ANHC No.: S-ADEQ-00-011

Subject: Site Inspection, BPS Facility, South of West Helena, AR.

Attached is a list of Elements of Special Concern known to occur within a one, four, and a fifteen mile radius of the BPS Facility south of West Helena, Arkansas. No occurrences have been recorded within a one mile radius. One occurrence has been recorded within a four mile radius of the review site, and 41 within a fifteen mile radius. An occurrence represents a location which provides habitat for sensitive species (both state and federal species), is an outstanding example of a natural community, or is a colonial bird nesting site.

Our records indicate the following managed areas fall within the fifteen mile radius:

Federal Managed Areas:

St. Francis National Forest - U.S. Forest Service Turkey Ridge Research Natural Area - U.S. Forest Service St. Francis Wildlife Management Area - U.S. Forest Service, Arkansas Game and Fish Commission.



ARKANSAS NATURAL HERITAGE COMMISSION DEPARTMENT OF ARKANSAS HERITAGE INVENTORY RESEARCH PROGRAM ELEMENTS OF SPECIAL CONCERN WITHIN 15, 4, OR 1-MILE RADIUS OF BPS FACILITY, WEST HELENA, AR

ELEMENT NAME	FEDERAL STATUS			STATE RANK
** Animals				
* Vertebrates				
AMMODRAMUS SAVANNARUM, GRASSHOPPER SPARROW		INV	G5	S3B
ATRACTOSTEUS SPATULA, ALLIGATOR GAR		INV	G5	S2?
HIODON ALOSOIDES, GOLDEYE			G5	52?
LIMNOTHLYPIS SWAINSONII, SWAINSON'S WARBLER			G4	
SCAPHIRHYNCHUS ALBUS, PALLID STURGEON	LE		G1G2	
STERNA ANTILLARUM ATHALASSOS, INTERIOR LEAST TERN	LE	INV	G4T2Q	S2B
** Plants				
* Vascular Plants				
CAREX HITCHCOCKIANA, HITCHCOCK'S SEDGE		INV	G5 .	S1
CAREX LAXIFLORA, LOOSE-FLOWERED SEDGE		INV	G5	S3
CAREX NORMALIS, A SEDGE		_	G5	S?
JUGLANS CINEREA, BUTTERNUT		INV	G3G4	S3
OBOLARIA VIRGINICA, VIRGINIA PENNYWORT	•	INV	G5	S2
OSMORHIZA CLAYTONII, HAIRY SWEET-CICELY		INV	G5	S1S3
SCHISANDRA GITABRA CIVIVBING VAGNOVIA		SZ NÝ	res	S2S
ZANNICHELLIA PALUSTRIS, HORNED PONDWEED		INV	G5	S2S3
** Natural Communities				
MIXED MESOPHYTIC FOREST		INV	-	S4
RIVER FRONT FOREST		INV	-	S3

-These elements are recorded within a 4-mile radius of the review site.

No elements are recorded within a 1-mile radius of the review site.

LEGEND

STATUS CODES

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FEDERAL STATUS CODES

- C = Candidate species. The U.S. Fish and Wildlife Service has enough scientific information to warrant proposing these species for listing as endangered or threatened under the Endangered Species Act.
- LE = Listed Endangered; the U.S. Fish and Wildlife Service has listed these species as endangered under the Endangered Species Act.
- LT = Listed Threatened; the U.S. Fish and Wildlife Service has listed these species as threatened under the Endangered Species Act.
- LELT = Listed Endangered and Threatened; the U.S. Fish and Wildlife Services has listed these species as endangered and threatened in different parts of the breeding range.
- PE = Proposed Endangered; the U.S. Fish and Wildlife Service has proposed these species for listing as endangered.
- PT = Proposed Threatened; the U.S. Fish and Wildlife Service has proposed these species for listing as threatened.
- T/SA = Threatened (or Endangered) because of similarity of appearance. E/SA

STATE STATUS CODES

- INV = Inventory Element; The Arkansas Natural Heritage Commission is currently conducting inventory work on these elements to determine their status in the state. These elements may include outstanding examples of Natural Communities, colonial nesting sites, outstanding scenic and geologic features as well as plants and animals which, according to current information, may be rare, peripheral, or of an undetermined status in the state.
- SE = State Endangered; The Arkansas Natural Heritage Commission applies this term to native taxa which are in danger of being extirpated from the state.
- ST = State Threatened; The Arkansas Natural Heritage Commission applies this term to native taxa which are believed likely to become endangered in Arkansas in the foreseeable future, based on current inventory information.

DEFINITION OF RANKS

Global Ranks

- Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
- G2 = Imperiled globally because of rarity (6-20 occurrences or few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
- G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single western state, a physiographic region in the East) or because of other factors making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 100.
- G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

REFERENCE 8

POPULATION AROUND BPS

CNTY:

LOCATION:

34.513000, -90.645721

METHOD:

Block Group Proration method.

Number Of Persons:

35

RADIUS:

0.25 miles

SOURCE:

Summary of 1 Block Groups

POPULATION AROUND BPS

CNTY:

LOCATION:

34.513000, -90.645721

METHOD:

Block Group Proration method.

Number Of Persons:

106

RADIUS:

0.50 miles

SOURCE:

Summary of 2 Block Groups

CNTY:

LOCATION:

34.513000, -90.645721

METHOD:

Block Group Proration method.

Number Of Persons:

106

RADIUS:

1.00 miles

SOURCE:

Summary of 3 Block Groups

CNTY:

LOCATION:

34.513000, -90.645721

METHOD:

Block Group Proration method.

Number Of Persons:

802

RADIUS:

2.00 miles

SOURCE:

Summary of 10 Block Groups

CNTY:

LOCATION:

34.513000, -90.645721

METHOD:

Block Group Proration method.

Number Of Persons:

2462

RADIUS:

3.00 miles

SOURCE:

Summary of 18 Block Groups

CNTY:

LOCATION:

34.513000, -90.645721

METHOD:

Block Group Proration method.

Number Of Persons:

4925

RADIUS:

4.00 miles

SOURCE:

Summary of 21 Block Groups

APPENDIX A

ADEQ PHOTOLOG

SITE NAME: BPS, INC.

SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh 13

WITNESS: Vicki Prewett

DATE: 9/12/00

DIRECTION: south east

TIME: 0856

SUBJECT: SB03

PHOTO #1 DISK #1



SITE NAME: BPS, INC.

SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh \$\forall 5\$ WITNESS: Vicki Prewett \$\rho\$

DATE: 9/12/00

DIRECTION: south

TIME: 0907

SUBJECT: SB06

PHOTO #2 DISK #1



SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh

WITNESS: Vicki Prewett v p

DATE: 9/12/00

DIRECTION: west

TIME: 0917

SUBJECT: SS07

PHOTO #3 DISK #1



SITE NAME: BPS, INC.

SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh | S WITNESS: Vicki Prewett * |

DATE: 9/12/00

DIRECTION: west

TIME: 0924

SUBJECT: SB09

PHOTO #4 DISK #1



SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh

WITNESS: Vicki Prewett Jp

DATE: 9/12/00

DIRECTION: north

TIME: 0937

SUBJECT: SS01

PHOTO #5 DISK #1



SITE NAME: BPS, INC.

SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh WITNESS: Vicki Prewett V p

DATE: 9/12/00

DIRECTION: west

TIME: 0943

SUBJECT: SB01

PHOTO #6 DISK #1



SITE LOCATION: West Helena, Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh SWITNESS: Vicki Prewett VP

DATE: 9/12/00

DIRECTION: east

TIME: 0952

SUBJECT: SS02

PHOTO #7 DISK #1



SITE NAME: BPS, INC.

SITE LOCATION: West Helena, Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh BY WITNESS: Vicki Prewett & P

DATE: 9/12/00

DIRECTION: east

TIME: 1003

SUBJECT: SB02

PHOTO#8 DISK#2



SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh WITNESS: Vicki Prewett » ?

DATE: 9/12/00

DIRECTION: east

TIME: 1014

SUBJECT: SS03

PHOTO #9 DISK #2



SITE NAME: BPS, INC.

SITE LOCATION: West Helena, Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh B WITNESS: Vicki Prewett J P

DATE: 9/12/00

DIRECTION: east

TIME: 1028

SUBJECT: SB04

PHOTO #10 DISK #2



SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh SWITNESS: Vicki Prewett vp

DATE: 9/12/00

DIRECTION: north

TIME: 1045

SUBJECT: SS04

PHOTO #11 DISK #2



SITE NAME: BPS, INC.

SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh

WITNESS: Vicki Prewett ♥₽

DATE: 9/12/00

DIRECTION: north

TIME: 1055

SUBJECT: SB05

PHOTO #12 DISK #2



SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh

WITNESS: Vicki Prewett ∜ P

DATE: 9/12/00

DIRECTION: east

TIME: 1107

SUBJECT: SS05/SS06

PHOTO #13 DISK #2



SITE NAME: BPS, INC.

SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh B WITNESS: Vicki Prewett ♥₽

DATE: 9/12/00

DIRECTION: east

TIME: 1127

SUBJECT: SB07/SB08

PHOTO #14 DISK #3



SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh WITNESS: Vicki Prewett | P

DATE: 9/12/00

DIRECTION: south

TIME: 1141

SUBJECT: SD01

PHOTO #15 DISK #3



SITE NAME: BPS, INC.

SITE LOCATION: West Helena, Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh ♥
WITNESS: Vicki Prewett √?

DATE: 9/12/00

DIRECTION: west

TIME: 1325

SUBJECT: SD02

PHOTO #16 DISK #3



SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh & WITNESS: Vicki Prewett

DATE: 9/12/00

DIRECTION: south

TIME: 1339

SUBJECT: SD03

PHOTO #17 DISK #3



SITE NAME: BPS, INC.

SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh

WITNESS: Vicki Prewett

DATE: 9/12/00

DIRECTION: south

TIME: 1356

SUBJECT: SD04

PHOTO #18 DISK #3



SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Slight WITNESS: Vicki Prewett

DATE: 9/12/00

DIRECTION: south east

TIME: 1417

SUBJECT: SD05/SD06

PHOTO #19 DISK #3



SITE NAME: BPS, INC.

SITE LOCATION: West Helena,

Arkansas

EPA I.D. #: ARD983288572

PHOTOGRAPHER: Terry Sligh WITNESS: Vicki Prewett

DATE: 9/12/00

DIRECTION: south west

TIME: 1453

SUBJECT: SD07

PHOTO #20 DISK #4



APPENDIX B

SEMIVOLATILE ORGANIC COMPOUNDS

Case No.: 28507 Units: MG/KG

T. M. Mb.	FO. 1400	50 MO4	50 Mor	FO. 1400	FO 1407	50 M00
Traffic Number Matrix	FG -M63 SOIL	FG -M64 SOIL	FG -M65 SOIL	FG -M66 SOIL	FG -M67 SOIL	FG -M68 SOIL
% Solids	84.6	75.5	85.5	79	84.7	85
Location	SS01	SS02	SS03	SS04	SS05	SS06
Benzaldehyde	380 U	180 LJ	380 U	420 U	390 U	390 U
Phenol	380 U 380 U	420 U 420 U	380 U 380 U	420 U 420 U	390 U 390 U	390 U 390 U
bis-(2-Chloroethyl) ether 2-Chlorophenol	380 U	420 U	380 U	420 U	390 U	390 U
2-Methylphenol	380 U	420 U	380 U	420 U	390 U	390 U
2,2'-oxybis(1-Chloropropane)	380 U	420 U	380 U	420 U	390 U	390 U
Acetophenone	380 U	140 LJ	380 U	420 U	390 U	390 U
4-Methylphenol	380 U	420 U	380 U	420 U	390 U	390 U
N-Nitroso-di-n-propylamine	380 U	420 U	380 U	420 U	390 U	390 U
Hexachloroethane	380 U	420 U	380 U	420 U	390 U	390 U
Nitrobenzene	380 U	420 U	380 U	420 U	390 U	390 U
Isophorone	380 U 380 U	420 U 420 U	380 U 380 U	420 U 420 U	390 U 390 U	390 U 390 U
2-Nitrophenol 2,4-Dimethylphenol	380 U	420 U	380 U	420 U	390 U	390 U
bis(2-Chloroethoxy)methane	380 U	420 U	380 U	420 U	390 U	390 U
2.4-Dichlorophenol	380 U	420 U	380 U	420 U	390 U	390 U
Naphthalene	380 U	51 LJ	380 U	420 U	390 U	390 U
4-Chloroaniline	380 U	420 U	380 U	420 U	390 U	390 U
Hexachlorobutadiene	380 U	420 U	380 U	420 U	390 U	390 U
Caprolactam	380 U	50 LJ	380 U	420 U	22 LJ	390 U
4-Chloro-3-methylphenol	380 U	420 U	380 U	420 U	390 U	390 U
2-Methylnaphthalene	380 U 380 U	110 LJ 420 U	380 U 380 U	420 U 420 U	390 U 390 U	390 U
Hexachlorocyclopentadiene 2,4,6-Trichlorophenol	380 U	420 U	380 U	420 U	390 U	390 U 390 U
2,4,5-Trichlorophenol	970 U	1100 U	950 U	1100 U	980 U	980 U
1,1'-Biphenyl	380 U	420 U	380 U	420 U	390 U	390 U
2-Chloronaphthalene	380 U	420 U	380 U	420 U	390 U	390 U
2-Nitroaniline	970 U	1100 U	950 U	1100 U	980 U	980 U
Dimethylphthalate	380 U	420 U	380 U	420 U	390 U	390 U
2,6-Dinitrotoluene	380 U	420 U	380 U	420 U	390 U	390 U
Acenaphthylene	380 U 970 U	420 U 1100 U	380 U	420 U 1100 U	390 U	390 U
3-Nitroaniline Acenaphthene	380 U	420 U	950 U 380 U	1100 U 420 U	980 U 390 U	980 U 390 U
2,4-Dinitrophenol	970 U	1100 U	950 U	1100 U	980 U	980 U
4-Nitrophenol	970 U	1100 U	950 U	1100 U	980 U	980 U
Dibenzofuran	380 U	420 U	380 U	420 U	390 U	390 U
2,4-Dinitrotoluene	380 U	420 U	380 U	420 U	390 U	390 U
Diethylphthalate	24 LJ	35 LJ	380 U	420 U	22 LJ	20 LJ
Fluorene	380 U	420 U	380 U	420 U	390 U	390 U
4-Chlorophenyl-phenyl ether 4-Nitroaniline	380 U 970 U	420 U 1100 U	380 U 950 U	420 U 1100 U	390 U 980 U	390 U
4,6-Dinitro-2-methylphenol	970 U	1100 U	950 U	1100 U	980 U	980 U 980 U
N-Nitrosodiphenylamine	380 U	420 U	380 U	420 U	390 U	390 U
4-Bromophenyl-phenylether	380 U	420 U	380 U	420 U	390 U	390 U
Hexachlorobenzene	380 U	2300	380 U	420 U	390 U	390 U
Atrazine	380 U	420 U	380 U	420 U	390 U	390 U
Pentachlorophenol	970 U	1100 U	950 U	1100 U	980 U	980 U
Phenanthrene	380 U	28 LJ	380 U	420 U	390 U	31 LJ
Anthracene	380 U	420 U	380 U	420 U	390 U	390 U
Carbazole	380 U 27 LJ	420 U 34 LJ	380 U 22 LJ	420 U 420 U	390 U 29 LJ	390 U
Di-n-butylphthalate Fluoranthene	20 LJ	420 U	380 U	420 U	29 LJ 390 U	29 LJ 77 LJ
Pyrene	20 LJ	420 U	21 LJ	420 U	390 U	77 LJ 75 LJ
Butylbenzylphthalate	380 U	420 U	380 U	420 U	390 U	390 U
3,3'-Dichlorobenzidine	380 U	420 U	380 U	420 U	390 U	390 U
Benzo(a)anthracene	380 U	35 LJ	380 U	420 U	390 U	51 LJ
Chrysene	20 LJ	75 LJ	380 U	420 U	390 U	62 LJ

Traffic Number	FG -M63	FG -M64	FG -M65	FG -M66	FG -M67	FG -M68
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
% Solids	84.6	75.5	85.5	79	84.7	85
Location	SS01	SS02	SS03	SS04	SS05	SS06
bis(2-Ethylhexyl)phthalate Di-n-octylphthalate Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenzo(a,h)anthracene Benzo(g,h,i)perylene	91 LJ 380 U 380 U 380 U 380 U 380 U 380 U 380 U	420 U 420 U 420 U 33 LJ 420 U 420 U 37 LJ 420 U	380 U 380 U 38 LJ 23 LJ 380 U 380 U 380 U 380 U	420 U 420 U 420 U 420 U 420 U 420 U 420 U 420 U	390 U 390 U 390 U 390 U 390 U 390 U 390 U	390 U 390 U 74 LJ 23 LJ 47 LJ 390 U 390 U 390 U

U - NOT DETECTED

L - CONCENTRATION BETWEEN IDL & CRDL

UC - RAISED DETECTION LIMIT

J - ESTIMATED VALUE

^- HIGH BIAS v - LOW BIAS

BACKGROUND SAMPLE HIGHLIGHTED

SEMIVOLATILE ORGANIC COMPOUNDS

Case No.: 28507 Units: UG/KG

Traffic Number	FG -M69 SOIL	FG -M70 SOIL	FG -M71 SOIL	FG -M72 SOIL	FG -M73 SOIL	FG -M74 SOIL
Matrix % Solids	89.5	91.3	82.8	91.7	91.6	80.9
Location	SS07	SB01	SB02	SB03	SB04	SB05
Benzaldehyde	370 U	360 U	380 U	360 U	360 U	400 U
Phenol	370 U	360 U	380 U	360 U	360 U	400 U
bis-(2-Chloroethyl) ether	370 U	360 U	380 U	360 U	360 U	400 U
2-Chlorophenol	370 U	360 U	380 U	360 U	360 U	400 U
2-Methylphenol	370 U	360 U	380 U	360 U	360 U	400 U
2,2'-oxybis(1-Chloropropane)	370 U	360 U	380 U	360 U	360 U	400 U
Acetophenone	370 U	360 U	380 U	360 U	360 U	400 U
4-Methylphenol	370 U	360 U	380 U	360 U	360 U	400 U
N-Nitroso-di-n-propylamine	370 U	360 U	380 U	360 U	360 U	400 U
Hexachloroethane	370 U 370 U	360 U 360 U	380 U 380 U	360 U 360 U	360 U	400 U
Nitrobenzene Isophorone	370 U 370 U	360 U	380 U	360 U	360 U 360 U	400 U 400 U
2-Nitrophenol	370 U	360 U	380 U	360 U	360 U	400 U
2,4-Dimethylphenol	370 U	360 U	380 U	360 U	360 U	400 U
bis(2-Chloroethoxy)methane	370 U	360 U	380 U	360 U	360 U	400 U
2,4-Dichlorophenol	370 U	360 U	380 U	360 U	360 U	400 U
Naphthalene	370 U	360 U	380 U	360 U	360 U	400 U
4-Chloroaniline	370 U	360 U	380 U	360 U	360 U	400 U
Hexachlorobutadiene	370 U	360 U	380 U	360 U	360 U	400 U
Caprolactam	370 U	360 U	380 U	360 U	360 U	400 U
4-Chloro-3-methylphenol	370 U	360 U	380 U	360 U	360 U	400 U
2-Methylnaphthalene	370 U	360 U	62 LJ	360 U	360 U	400 U
Hexachlorocyclopentadiene	370 U	360 U	380 U	360 U	360 U	400 U
2,4,6-Trichlorophenol	370 U	360 U	380 U	360 U	360 U	400 U
2,4,5-Trichlorophenol	920 U	910 U	970 U	910 U	900 U	1000 U
1,1'-Biphenyl 2-Chloronaphthalene	370 U 370 U	360 U 360 U	380 U 380 U	360 U 360 U	360 U 360 U	400 U
2-Nitroaniline	920 U	910 U	970 U	910 U	900 U	400 U 1000 U
Dimethylphthalate	370 U	360 U	380 U	360 U	360 U	400 U
2,6-Dinitrotoluene	370 U	360 U	380 U	360 U	360 U	400 U
Acenaphthylene	370 U	360 U	380 U	360 U	360 U	400 U
3-Nitroaniline	920 U	910 U	970 U	910 U	900 U	1000 U
Acenaphthene	370 U	360 U	380 U	360 U	360 U	400 U
2,4-Dinitrophenol	920 U	910 U	970 U	910 U	900 U	1000 U
4-Nitrophenol	920 U	910 U	970 U	910 U	900 U	1000 U
Dibenzofuran	370 U	360 U	380 U	360 U	360 U	400 U
2,4-Dinitrotoluene	370 U	360 U	380 U	360 U	360 U	400 U
Diethylphthalate	370 U	27 LJ	380 U	360 U	360 U	400 U
A Chlorenberyl phonyl other	370 U 370 U	360 U 360 U	380 U 380 U	360 U	360 U	400 U
4-Chlorophenyl-phenyl ether 4-Nitroaniline	920 U	910 U	380 U 970 U	360 U 910 U	360 U 900 U	400 U 1000 U
4,6-Dinitro-2-methylphenol	920 U	910 U	970 U	910 U	900 U	1000 U
N-Nitrosodiphenylamine	370 U	360 U	380 U	360 U	360 U	400 U
4-Bromophenyl-phenylether	370 U	360 U	380 U	360 U	360 U	400 U
Hexachlorobenzene	370 U	360 U	380 U	360 U	360 U	400 U
Atrazine	370 U	360 U	380 U	360 U	360 U	400 U
Pentachlorophenol	920 U	910 U	970 U	910 U	900 U	1000 U
Phenanthrene	370 U	360 U	380 U	360 U	360 U	400 U
Anthracene	370 U	360 U	380 U	360 U	360 U	400 U
Carbazole	370 U	360 U	380 U	360 U	360 U	400 U
Di-n-butylphthalate	29 LJ	27 LJ	23 LJ	19 LJ	24 LJ	21 LJ
Fluoranthene	370 U	360 U	380 U	360 U	360 U	400 U
Pyrene Butulbenzulehthelete	370 U	360 U	380 U	360 U	360 U	400 U
Butylbenzylphthalate 3,3'-Dichlorobenzidine	370 U 370 U	360 U 360 U	380 U	360 U	360 U	400 U
Benzo(a)anthracene	370 U	360 U	380 U 380 U	360 U 360 U	360 U 360 U	400 U
Chrysene	370 U	360 U	380 U	360 U	360 U	400 U 400 U
J J. J	010	300 0	300 0	300 0	300 0	400 0

Traffic Number	FG -M69	FG -M70	FG -M71	FG -M72		FG -M73		FG -M74	
Matrix	SOIL	SOIL	SOIL	SOIL		SOIL		SOIL	
% Solids	89.5	91.3	82.8	91.7		91.6		80.9	
Location	SS07	SB01	SB02	SB03		SB04		SB05	
bis(2-Ethylhexyl)phthalate	71 LJ	360 U	380 U	230	LJ	290	LJ	400	U
Di-n-octylphthalate	370 U	360 U	380 U	360	U	360	U	400	U
Benzo(b)fluoranthene	370 U	360 U	380 U	360	U	360	U	400	U
Benzo(k)fluoranthene	370 U	360 U	380 U	360	U	360	U	400	U
Benzo(a)pyrene	370 U	360 U	380 U	360	U	360	U	400	U
Indeno(1,2,3-cd)pyrene	370 U	360 U	380 U	360	U	360	U	400	U
Dibenzo(a,h)anthracene	370 U	360 U	32	LJ 360	U	360	U	400	U

U - NOT DETECTED L - CONCENTRATION BETWEEN IDL & CRDL UC - RAISED DETECTION LIMIT

J - ESTIMATED VALUE

^ - HIGH BIAS v - LOW BIAS

BACKGROUND SAMPLE HIGHLIGHTED

SEMIVOLATILE ORGANIC COMPOUNDS

Case No.: 28507 Units: UG/KG

Traffic Number Matrix	FG -M75 SOIL	FG -M76 SOIL	FG -M77 SOIL	FG -M78 SOIL	FG -M79 SOIL	FG -M80 SOIL
% Solids	92.2	88	88	94.2	69.1	80.4
Location	SB06	SB07	SB08	SB09	SD01	SD02
Benzaldehyde	350 U	380 U	380 U	350 U	50 LJ	410 U
Phenol	350 U	380 U	380 U	350 U	490 U	410 U
bis-(2-Chloroethyl) ether	350 U	380 U	380 U	350 U	490 U	410 U
2-Chlorophenol	350 U	380 U	380 U	350 U	490 U	410 U
2-Methylphenol	350 U	380 U	380 U	350 U	490 U	410 U
2,2'-oxybis(1-Chloropropane)	350 U	380 U	380 U	350 U	490 U	410 U
Acetophenone	350 U	380 U	380 U	350 U	39 LJ	22 LJ
4-Methylphenol	350 U	380 U	380 U	350 U	490 U	410 U
N-Nitroso-di-n-propylamine	350 U	380 U	380 U	350 U	490 U	410 U
Hexachloroethane	350 U	380 U	380 U	350 U	490 U	410 U
Nitrobenzene	350 U	380 U	380 U	350 U	490 U	410 U
Isophorone	350 U	380 U	380 U	350 U	490 U	410 U
2-Nitrophenol	350 U	380 U	380 U	350 U	490 U	410 U
2,4-Dimethylphenol	350 U	380 U	380 U	350 U	490 U	410 U
bis(2-Chloroethoxy)methane	350 U	380 U	380 U	350 U	490 U	410 U
2,4-Dichlorophenol	350 U	380 U	380 U	350 U	490 U	410 U
Naphthalene	350 U	380 U	380 U	350 U	490 U	410 U
4-Chloroaniline	350 U	380 U	380 U	350 U	490 U	410 U
Hexachlorobutadiene	350 U	380 U	380 U	350 U	490 U	410 U
Caprolactam	350 U	380 U	380 U	350 U	490 U	410 U
4-Chloro-3-methylphenol	350 U	380 U	380 U	350 U	490 U	410 U
2-Methylnaphthalene	350 U	380 U	380 U	350 U	490 U	410 U
Hexachlorocyclopentadiene	350 U	380 U	380 U	350 U	490 U	410 U
2,4,6-Trichlorophenol	350 U 890 U	380 U 940 U	380 U 940 U	350 U 870 U	490 U 1200 U	410 U 1000 U
2,4,5-Trichlorophenol	890 U 350 U	380 U	380 U	350 U	490 U	410 U
1,1'-Biphenyl 2-Chloronaphthalene	350 U	380 U	380 U	350 U	490 U	410 U
2-Nitroaniline	890 U	940 U	940 U	870 U	1200 U	1000 U
Dimethylphthalate	350 U	380 U	380 U	350 U	490 U	410 U
2,6-Dinitrotoluene	350 U	380 U	380 U	350 U	490 U	410 U
Acenaphthylene	350 U	380 U	380 U	350 U	490 U	410 U
3-Nitroaniline	890 U	940 U	940 U	870 U	1200 U	1000 U
Acenaphthene	350 U	380 U	380 U	350 U	490 U	410 U
2,4-Dinitrophenol	890 U	940 U	940 U	870 U	1200 U	1000 U
4-Nitrophenol	890 U	940 U	940 U	870 U	1200 U	1000 U
Dibenzofuran	350 U	380 U	380 U	350 U	490 U	410 U
2,4-Dinitrotoluene	350 U	380 U	380 U	350 U	490 U	410 U
Diethylphthalate	350 U	380 U	380 U	350 U	490 U	410 U
Fluorene	350 U	380 U	380 U	350 U	490 U	410 U
4-Chlorophenyl-phenyl ether	350 U	380 U	380 U	350 U	490 U	410 U
4-Nitroaniline	890 U	940 U	940 U	870 U	1200 U	1000 U
4,6-Dinitro-2-methylphenol	890 U	940 U	940 U	870 U	1200 U	1000 U
N-Nitrosodiphenylamine	350 U	380 U	380 U	350 U	490 U	410 U
4-Bromophenyl-phenylether	350 U	380 U	380 U	350 U	490 U	410 U
Hexachlorobenzene	350 U	380 U	380 U	350 U	490 U	410 U
Atrazine	350 U	380 U	380 U	350 U	490 U	410 U
Pentachlorophenol	890 U	940 U	940 U	870 U	1200 U	1000 U
Phenanthrene	350 U	380 U	380 U	350 U	490 U	410 U
Anthracene	350 U	380 U	380 U	350 U	490 U	410 U
Carbazole	350 U	380 U	380 U	350 U	490 U	410 U
Di-n-butylphthalate	350 U	380 U	380 U 380 U	350 U	490 U	410 U
Fluoranthene	350 U	380 U		350 U 350 U	490 U 490 U	410 U
Pyrene Butylbenzylphthalate	350 U 350 U	380 U 380 U	380 U		The state of the s	410 U
3,3'-Dichlorobenzidine	350 U	380 U	380 U 380 U	350 U 350 U	490 U 490 U	410 U
Benzo(a)anthracene	350 U	380 U	380 U	350 U	490 U	410 U 410 U
Chrysene	350 U	380 U	380 U	350 U	490 U	410 U
	550 0	300 0	300 0	03010	430 0	410 0

Traffic Number	FG -M75	FG -M76	FG -M77	FG -M78	FG -M79	FG -M80
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
% Solids	92.2	88	88	94.2	69.1	80.4
Location	SB06	SB07	SB08	SB09	SD01	SD02
bis(2-Ethylhexyl)phthalate	350 U	380 U	380 U	350 U	490 U	410 U
Di-n-octylphthalate	350 U	380 U	380 U	350 U	490 U	410 U
Benzo(b)fluoranthene	350 U	380 U	380 U	350 U	490 U	410 U
Benzo(k)fluoranthene	350 U	380 U	380 U	350 U	490 U	410 U
Benzo(a)pyrene	350 U	380 U	380 U	350 U	490 U	410 U
Indeno(1,2,3-cd)pyrene	350 U	380 U	380 U	350 U	490 U	410 U
Dibenzo(a,h)anthracene	350 U	380 U	380 U	350 U	490 U	410 U
Benzo(g,h,i)perylene	350 U	380 U	380 U	350 U	490 U	410 U

U - NOT DETECTED L - CONCENTRATION BETWEEN IDL & CRDL UC - RAISED DETECTION LIMIT

BACKGROUND SAMPLE HIGHLIGHTED

SEMIVOLATILE ORGANIC COMPOUNDS

Case No.: 28507 Units: UG/KG

Traffic Number	FG -M81 SOIL	FG -M82 SOIL	FG -M83 SOIL	FG -M84 SOIL	FG -M85 SOIL
Matrix	80.1	84.1	84.6	84.5	79.3
% Solids	SD03	SD04	SD05	SD06	SD07
Location	3003	3004	3003	3000	3007
Benzaldehyde	53 LJ	390 U	390 U	390 U	410 U
Phenol	430 U	390 U	390 U	390 U	410 U
bis-(2-Chloroethyl) ether	430 U	390 U	390 U	390 U	410 U
2-Chlorophenol	430 U	390 U	390 U	390 U	410 U
2-Methylphenol	430 U	390 U	390 U	390 U	410 U
2,2'-oxybis(1-Chloropropane)	430 U	390 U	390 U	390 U	410 U
Acetophenone	430 U	390 U	390 U	390 U	410 U
4-Methylphenol	430 U	390 U	390 U	390 U	410 U
N-Nitroso-di-n-propylamine	430 U	390 U	390 U	390 U	410 U
Hexachloroethane	430 U	390 U	390 U	390 U	410 U
Nitrobenzene	430 U	390 U	390 U	390 U	410 U
Isophorone	430 U	390 U	390 U	390 U	410 U
2-Nitrophenol	430 U	390 U	390 U	390 U	410 U
2,4-Dimethylphenol	430 U	390 U	390 U	390 U	410 U
bis(2-Chloroethoxy)methane	430 U	390 U	390 U	390 U	410 U
2.4-Dichlorophenol	430 U	390 U	390 U	390 U	410 U
Naphthalene	430 U	390 U	390 U	390 U	410 U
4-Chloroaniline	430 U	390 U	390 U	390 U	410 U
Hexachlorobutadiene	430 U	390 U	390 U	390 U	410 U
Caprolactam	430 U	390 U	390 U	390 U	410 U
4-Chloro-3-methylphenol	430 U	390 U	390 U	390 U	410 U
2-Methylnaphthalene	430 U	390 U	390 U	390 U	410 U
Hexachlorocyclopentadiene	430 U	390 U	390 U	390 U	410 U
2,4,6-Trichlorophenol	430 U	390 U	390 U	390 U	410 U
2,4,5-Trichlorophenol	1100 U	990 U	980 U	990 U	1000 U
1,1'-Biphenyl	430 U	390 U	390 U	390 U	410 U
2-Chloronaphthalene	430 U	390 U	390 U	390 U	410 U
2-Nitroaniline	1100 U	990 U	980 U	990 U	1000 U
Dimethylphthalate	430 U	390 U	390 U	390 U	410 U
2,6-Dinitrotoluene	430 U	390 U	390 U	390 U	410 U
Acenaphthylene	430 U	390 U	390 U	390 U	410 U
3-Nitroaniline	1100 U	990 U	980 U	990 U	1000 U
Acenaphthene	430 U	390 U	390 U	390 U	410 U
2,4-Dinitrophenol	1100 U	990 U	980 U	990 U	1000 U
4-Nitrophenol	1100 U	990 U	980 U	990 U	1000 U
Dibenzofuran	430 U	390 U	390 U	390 U	410 U
2,4-Dinitrotoluene	430 U	390 U	390 U	390 U	410 U
Diethylphthalate	430 U	390 U	390 U	390 U	410 U
Fluorene	430 U	390 U	390 U	390 U	410 U
4-Chlorophenyl-phenyl ether	430 U	390 U	390 U	390 U	410 U
4-Nitroaniline	1100 U	990 U	980 U	990 U	1000 U
4,6-Dinitro-2-methylphenol	1100 U	990 U	980 U	990 U	1000 U
N-Nitrosodiphenylamine	430 U	390 U	390 U	390 U	410 U
4-Bromophenyl-phenylether	430 U	390 U	390 U	390 U	410 U
Hexachlorobenzene	430 U	390 U	390 U	390 U	410 U
Atrazine	430 U	390 U	390 U	390 U	410 U
Pentachlorophenol	1100 U	990 U	980 U	990 U	1000 U
Phenanthrene	430 U	390 U	390 U	390 U	410 U
Anthracene	430 U	390 U	390 U	390 U	410 U
Carbazole	430 U	390 U	390 U	390 U	410 U
Di-n-butylphthalate	430 U	390 U	390 U	390 U	410 U
Fluoranthene	430 U	390 U	390 U	390 U	410 U
Pyrene	430 U	390 U	390 U	390 U	410 U
Butylbenzylphthalate	430 U	390 U	390 U	390 U	410 U
3,3'-Dichlorobenzidine	430 U	390 U	390 U	390 U	410 U
Benzo(a)anthracene	430 U	390 U	390 U	390 U	410 U
Chrysene	430 U	390 U	390 U	390 U	410 U

Traffic Number Matrix % Solids	FG -M81 SOIL 80.1	FG -M82 SOIL 84.1	FG -M83 SOIL 84.6	FG -M84 SOIL 84.5	FG -M85 SOIL 79.3
Location	SD03	SD04	SD05	SD06	SD07
bis(2-Ethylhexyl)phthalate	430 U	390 U	390 U	390 U	410 U
Di-n-octylphthalate	430 U	390 U	390 U	390 U	410 U
Benzo(b)fluoranthene	430 U	390 U	390 U	390 U	410 U
Benzo(k)fluoranthene	430 U	390 U	390 U	390 U	410 U
Benzo(a)pyrene	430 U	390 U	390 U	390 U	410 U
Indeno(1,2,3-cd)pyrene	430 U	390 U	390 U	390 U	410 U
Dibenzo(a,h)anthracene	430 U	390 U	390 U	390 U	410 U
Benzo(g,h,i)perylene	430 U	390 U	390 U	390 U	410 U

U - NOT DETECTED L - CONCENTRATION BETWEEN IDL & CRDL

UC - RAISED DETECTION LIMIT

J - ESTIMATED VALUE

^ - HIGH BIAS v - LOW BIAS

BACKGROUND SAMPLE HIGHLIGHTED

PESTICIDE AND PCB COMPOUNDS

Case No.: 28507 Units: UG/KG

Traffic Number	FG -M63	FG -M64		FG -M65	FG -M66	FG -M67	FG -M68
Matrix	SOIL	SOIL		SOIL	SOIL	SOIL	SOIL
% Solids	84.6	75.5		85.5	79	84.7	85
Location	SS01	SS02		SS03	SS04	SS05	SS06
alpha-BHC	0.52 L	4.0	J	2.0 U	2.2 U	2.0 U	2.0 U
beta-BHC	6.5 J	24	J	0.26	LJ 2.2 U	0.21 LJ	2.0 U
delta-BHC	2.0 U	2.2	U	2.0 U	0.57 LJE	2.0 U	2.0 U
gamma-BHC (Lindane)	2.0 U	2.2	U	2.0 U	2.2 U	2.0 U	2.0 U
Heptachlor	3.5 J	2.2	U	2.0 U		2.0 U	2.0 U
Aldrin	0.56 L	6.1	J	2.0 U	2.2 U	2.0 U	2.0 U
Heptachlor epoxide	0.69 L	2.2	U	2.0 U	0.25 LJ	2.0 U	2.0 U
Endosulfan I	1.2 L	18	J	2.0 U	2.2 U	2.0 U	2.0 U
Dieldrin	0.46 L	5.0	J	3.8 U	0.65 LJE	3.9 U	4.0 U
4,4'-DDE	24	27	J	28	J 4.7	34 J	45
Endrin	3.8 U	4.2	U	3.8 U	4.2 U	3.9 U	4.8 UM
Endosulfan II	3.3 L	1 15	J	3.8 U		3.9 U	11 UM
4,4'-DDD	8.6	18	J	9.8	1.7 LJ	6.7 J^	12 UM
Endosulfan sulfate	5.7 J	20		3.8 U	0.71 LJ	3.9 U	5.8 UM
4,4'-DDT	44 J	53	J	50	9.5	61 *	85 *
Methoxychlor	4.5 L	18	LJ	20 U	22 U	20 U	20 U
Endrin ketone	2.7 L	5.8		3.8 U	0.66 LJE	3.9 U	4.0 U
Endrin aldehyde	1.7 L	16	J	3.8 U	1.4 LJ	3.9 U	12 UM
alpha-Chlordane	2.0 U	2.2	U	2.0 U	0.33 LJ	2.0 U	2.0 U
gamma-Chlordane	1.7 L	16	J	2.0 U	1.1 LJE	2.0 U	2.0 U
Toxaphene	200 U	220	U	130	LJE 220 U	140 LJ	600 J^
Aroclor-1016	38 U	42	U	38 U	42 U	39 U	39 U
Aroclor-1221	78 U	86	U	77 U	85 U	79 U	79 U
Aroclor-1232	38 U	42	U	38 U	42 U	39 U	39 U
Aroclor-1242	38 U	42	U	38 U	42 U	39 U	39 U
Aroclor-1248	38 U	42	U	38 U		39 U	39 U
Aroclor-1254	38 U	42	U	38 U		39 U	39 U
Aroclor-1260	38 U	42	U	38 U	42 U	39 U	39 U

U - NOT DETECTED L - CONCENTRATION BETWEEN IDL & CRDL

UC - RAISED DETECTION LIMIT

J - ESTIMATED VALUE

^ - HIGH BIAS v - LOW BIAS

BACKGROUND SAMPLE HIGHLIGHTED

PESTICIDE AND PCB COMPOUNDS

Case No.: 28507 Units: MG/KG

Traffic Number	FG -M69		FG -M70		FG -M71		FG -M72		FG -M73		FG -M74	
Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
% Solids	89.5		91.3		82.8		91.7		91.6		80.9	
Location	SS07		SB01		SB02		SB03		SB04		SB05	
alpha-BHC		U	1.9			U	1.9	U		U	2.0	U
beta-BHC	1.9	U	1.9	U	2.0	U	1.9	U	1.8	U	2.0	U
delta-BHC	1.9	U	0.20	LJ	0.69	LJB	0.47	LJB	0.46	LJB	2.0	U
gamma-BHC (Lindane)	1.9	U	1.9	U	2.0	U	1.9	U	1.8	U	2.0	U
Heptachlor	1.9	U	0.10	LJ	2.0	U	1.9	U	1.8	U	2.0	U
Aldrin	0.33	LJ	1.9	U	2.0	U	1.9	U	1.8	U	2.0	U
Heptachlor epoxide	1.9	U	1.9	U	2.0	U	1.9	U	1.8	U	2.0	U
Endosulfan I	1.9	U	1.9	U	2.0	U	1.9	U	1.8	U	2.0	U
Dieldrin	3.8	U	3.6	U	0.58	LJE	3.6	U	3.6	U	4.0	U
4,4'-DDE	110	*	0.18	LJ	0.82	LJ	24		52	*	2.1	LJ
Endrin	5.0	UM	3.6	U	3.8	U	3.6	U	3.6	U	4.0	U
Endosulfan II	28	UM	3.6	U	3.8	U	3.6	U	3.6	U	4.0	
4,4'-DDD	16	UM	0.33	LJ	3.8	U	3.6	U	3.6	U	1.4	LJB
Endosulfan sulfate	16	UM	3.6	U	0.74	LJ	3.6	U	3.6	U	4.0	U
4,4'-DDT	270	*	3.6	U	3.1	LJE	42		110		3.5	LJB
Methoxychlor	51	UM	0.72	LJ	20	U	19	U	18	U	13	LJ
Endrin ketone	8.9	UM	3.6	U	3.8	U	3.6	U	3.6	U	4.0	U
Endrin aldehyde	44	UM	3.6	U	0.94	LJ	3.6	U	3.6	U	0.86	LJ
alpha-Chlordane	1.9	U	0.10	LJ	0.35	LJ	1.9	U	1.8	U	0.29	LJ
gamma-Chlordane	1.9	U	0.71	LJ	0.73	LJE	1.9	U	1.8	U	2.0	
Toxaphene	2100	J	190	U	200	U	88	LJ	260		200	U
Aroclor-1016	37	U	36	U	38	U	36	U	36	U	40	U
Aroclor-1221	74	U	74	U	78	U	74	U	73	U	81	U
Aroclor-1232	37	U	36	U	38	U	36	U	36	U	40	U
Aroclor-1242	37	U	36	U	38	U	36	U	36	U	40	U
Aroclor-1248	37	U	36	U	38	U	36	U		U	40	U
Aroclor-1254	37	U		U	38	U		Ü		Ü		1.000
Aroclor-1260	37	U	2000000	U		Ü		Ü		Ü	40	16.77

U - NOT DETECTED L - CONCENTRATION BETWEEN IDL & CRDL UC - RAISED DETECTION LIMIT

BACKGROUND SAMPLE HIGHLIGHTED

PESTICIDE AND PCB COMPOUNDS

Case No.: 28507 Units: MG/KG

Traffic Number	FG -M75	FG -M76	FG -M77	FG -M78	FG -M79	FG -M80
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
% Solids	92.2	88	88	94.2	69.1	80.4
Location	SB06	SB07	SB08	SB09	SD01	SD02
alpha-BHC	1.9 U	1.9 U	1.9 U	1.8 U	0.41 LJ	2.1 U
beta-BHC	1.9 U	1.9 U	1.9 U	0.78 LJ	0.50 LJ	2.1 U
delta-BHC	1.9 U	1.9 U	1.9 U	1.8 U	1.1 LJB	2.1 U
gamma-BHC (Lindane)	1.9 U	1.9 U	1.9 U	1.8 U	2.5 U	2.1 U
Heptachlor	1.9 U	1.9 U	1.9 U	1.8 U	2.5 U	2.1 U
Aldrin	1.9 U	1.9 U	1.9 U	1.8 U	0.26 LJ	2.1 U
Heptachlor epoxide	1.9 U	1.9 U	1.9 U	1.8 U	0.45 LJ	2.1 U
Endosulfan I	1.9 U	1.9 U	1.9 U	1.8 U	1.1 LJ	2.1 U
Dieldrin	3.8 U	3.8 U	3.8 U	3.5 U	0.93 LJ	4.1 U
4.4'-DDE	13	3.4 L	J 4.3	140 *	40	18
Endrin	3.8 U	3.8 U	3.8 U	3.5 U	4.0 LJ	4.1 U
Endosulfan II	3.8 U	3.8 U	3.8 U	3.5 U	3.2 LJ	4.1 U
4.4'-DDD	3.8 U	3.8 U	3.8 U	3.5 U	6.1	6.2 J^
Endosulfan sulfate	3.8 U	3.8 U	3.8 U		1.0 LJ	4.1 U
4.4'-DDT	29	7.0 J	11	470 *	60	7.3 J
Methoxychlor	19 U	19 U	19 U	The second secon	4.0 LJ	21 U
Endrin ketone	3.8 U	3.8 U	3.8 U	3.5 U	1.1 LJ	4.1 U
Endrin aldehyde	3.8 U	3.8 U	3.8 U	3.5 U	4.1 LJ	4.1 U
alpha-Chlordane	1.9 U	1.9 U	1.9 U	1.8 U	0.79 LJ	2.1 U
gamma-Chlordane	1.9 U	1.9 U	1.9 U	1.8 U	0.73 LJ	2.1 U
Toxaphene	52 LJ	63 L		J 1400 J	250 U	48 LJ
Aroclor-1016	38 U	38 U	38 U	35 U	49 U	41 U
Aroclor-1221	76 U	76 U	76 U	71 U	99 U	84 U
Aroclor-1232	38 U	38 U	38 U	The second secon	49 U	41 U
Aroclor-1242	38 U	38 U	38 U		49 U	41 U
Aroclor-1248	38 U	38 U	38 U	35 U	49 U	41 U
Aroclor-1254	38 U	38 U	38 U	35 U	49 U	41 U
Aroclor-1260	38 U	38 U	38 U	35 U	49 U	41 U

U - NOT DETECTED L - CONCENTRATION BETWEEN IDL & CRDL UC - RAISED DETECTION LIMIT

BACKGROUND SAMPLE HIGHLIGHTED

CHEMICAL DATA SUMMARIES PESTICIDE AND PCB COMPOUNDS

Case No.: 28507 Units: MG/KG

Traffic Number	FG -M81	FG -M82	FG -M83	FG -M84	FG -M85
Matrix	SOIL	SOIL	SOIL	SOIL	SOIL
% Solids	80.1	84.1	84.6	84.5	79.3
Location	SD03	SD04	SD05	SD06	SD07
alpha-BHC	2.2 U	2.0 U	2.0 U	2.0 U	2.1 U
beta-BHC	2.2 U	2.0 U	2.0 U	2.0 U	2.1 U
delta-BHC	2.2 U	2.0 U	2.0 U	2.0 U	2.1 U
gamma-BHC (Lindane)	2.2 U	2.0 U	2.0 U	2.0 U	2.1 U
Heptachlor	2.2 U	2.0 U	2.0 U	2.0 U	2.1 U
Aldrin	2.2 U	2.0 U	2.0 U	2.0 U	2.1 U
Heptachlor epoxide	2.2 U	2.0 U	2.0 U	2.0 U	2.1 U
Endosulfan I	2.2 U	2.0 U	2.0 U	2.0 U	2.1 U
Dieldrin	4.3 U	3.9 U	3.9 U	3.9 U	4.1 U
4,4'-DDE	4.3 U	3.9 U	4.9	4.8 J	4.1 U
Endrin	4.3 U	3.9 U	3.9 U	3.9 U	4.1 U
Endosulfan II	4.3 U	3.9 U	3.9 U	3.9 U	4.1 U
4.4'-DDD	4.3 U	3.9 U	3.9 U	3.9 U	4.1 U
Endosulfan sulfate	0.47 LJ	3.9 U	3.9 U	3.9 U	4.1 U
4.4'-DDT	4.3 U	18 J	5.6 J	9.9 JB	4.1 U
Methoxychlor	5.9 LJ	20 U	20 U	20 U	21 U
Endrin ketone	4.3 U	3.9 U	3.9 U	3.9 U	4.1 U
Endrin aldehyde	0.44 LJ	3.9 U	3.9 U	3.9 U	4.1 U
alpha-Chlordane	2.2 U	2.0 U	2.0 U	2.0 U	2.1 U
gamma-Chlordane	2.2 U	2.0 U	2.0 U	2.0 U	2.1 U
Toxaphene	220 U	480	62 LJ	220 J	210 U
Aroclor-1016	43 U	39 U	39 U	39 U	41 U
Aroclor-1221	87 U	80 U	79 U	80 U	84 U
Aroclor-1232	43 U	39 U	39 U	39 U	41 U
Aroclor-1242	43 U	39 U	39 U	39 U	41 U
Aroclor-1248	43 U	39 U	39 U	39 U	41 U
Aroclor-1254	43 U	39 U	39 U	39 U	41 U
Aroclor-1260	43 U	39 U	39 U	39 U	41 U

U - NOT DETECTED L - CONCENTRATION BETWEEN IDL & CRDL

UC - RAISED DETECTION LIMIT

BACKGROUND SAMPLE HIGHLIGHTED

INORGANIC COMPOUNDS

Case No.: 28507 Units: MG/KG

Traffic Number Matrix % Solids Location	MFJ -W63 SOIL 84.6 SS01		MFJ-W64 SOIL 75.5 SS02		MFJ-W65 SOIL 85.5 SS03		MFJ-W66 SOIL 79 SS04		MFJ-W67 SOIL 84.7 SS05		MFJ-W68 SOIL 85 SS06	
Aluminum	4190		5130		6540		7530		4450		5770	
Antimony	0.91	LUC	1.1	LUC	0.46	U Jv	0.55	LUCJv	0.46	U Jv	0.72	LUCJv
Arsenic	7.2		5.8		8.4		8.4		6.3		6.8	
Barium	99.5		109		122		102		90.1		104	
Beryllium	0.30	L	0.30	L	0.42	L	0.44	L	0.31	L	0.34	L
Cadmium	0.26	L	0.28	L	0.23	U	0.25	U	0.23	U	0.23	U
Calcium	20700		17700		6430		14300		7550		9230	
Chromium	6.4	J^	8.3	J^	9.0		9.8		6.7	J^	8.1	J^
Cobalt	4.5	L	6.7	L	6.3	L	7.4	L	4.7	L	5.4	L
Copper	14.6		17.5		12.3		13.6		8.1		9.2	
Iron	9230		12900		13200		16000		8500		9830	
Lead	6.8		6.5		8.3		7.5		6.9		6.8	
Magnesium	8140		10100		4460		7530		3810		4590	
Manganese	639		626		565		442		469		518	
Mercury	0.08	L	0.08	L	0.08	L	0.11	L	0.07	L	0.08	L
Nickel	9.3		12.0		12.3		12.2		8.7	L	10.7	
Potassium	747	L	1110	L	974	L	1040	L	717	L	939	L
Selenium	0.46	U	0.51	U	0.46	U	0.49	U	0.46	U	0.47	U
Silver	0.23	U	0.25	U	0.23	U	0.25	U	0.23	U	0.23	U
Sodium	178	LJ'	230	LJ^	218	LJ^	294	LJ^	189	LJ^	278	LJ^
Thallium	0.69	U	0.76	U	0.69	U	0.74	U	0.69	U	0.70	U
Vanadium	11.7		14.1		17.1		20.6		12.2		14.6	
Zinc	55.5	Jv	72.9	Jv	53.9	Jv	67.8	Jv	38.7	Jv	52.7	Jv

U - NOT DETECTED

L - CONCENTRATION BETWEEN IDL & CRDL

UC - RAISED DETECTION LIMIT

J - ESTIMATED VALUE

^ - HIGH BIAS

v - LOW BIAS

BACKGROUND SAMPLE HIGHLIGHTED

INORGANIC COMPOUNDS

Case No.: 28507 Units: MG/KG

Traffic Number Matrix % Solids Location	MFJ-W69 SOIL 89.5 SS07	MFJ-W70 SOIL 91.3 SB01	MFJ-W71 SOIL 82.8 SB02	MFJ -W72 SOIL 91.7 SB03	MFJ-W73 SOIL 91.6 SB04	MFJ-W74 SOIL 80.9 SB05
Aluminum	3960	5530	5490	6030	7530	7370
Antimony	0.65 U .	J 0.64 U	Jv 0.69	U Jv 0.64	U Jv 0.63 U	J Jv 0.71 U Jv
Arsenic	12.0	4.5	5.2	6.5	6.7	5.9
Barium	74.1	115	116	123	142	263
Beryllium	0.26 L	0.42	L 0.36	L 0.43	LUC 0.45	LUC 0.50 LUC
Cadmium	0.22 U	0.21 U	0.23	U 0.21	U 0.21 U	J 0.57 L
Calcium	739 L	1720	Jv 1550	Jv 1460	Jv 1600	Jv 1730 Jv
Chromium	6.0	7.6	7.5	7.9	9.3	9.5
Cobalt	4.8 L	6.3	L 6.3	L 7.3	L 7.3	L 7.4 L
Copper	8.0	8.7	14.1	10.2	11.1	11.7
Iron	7520	9880	10100	11500	12500	12300
Lead	9.8	6.5	6.8	8.6	9.0	14.3
Magnesium	1020 L	1620	1580	1580	1780	1690
Manganese	352	541	493	518	653	898
Mercury	0.08 LI	J 0.07 I	LUC 0.09	LUC 0.09	LUC 0.08	LUC 0.09 LUC
Nickel	7.3 L	11.6	11.1	12.0	14.4	15.9
Potassium	1020 L	573	L 575	L 632	L 723	L 685 L
Selenium	0.87 U	0.86 U	0.92	U 0.85	U 0.84 U	J 0.94 U
Silver	0.65 U	0.64 U	0.69	U 0.64	U 0.63 U	0.71 U
Sodium	209 L	294	LJ 232	LJ 220	LJ 236	LJ 257 LJ
Thallium	1.3 U	1.3 U	1.4	U 1.3	U 1.3	L 1.4 U
Vanadium	10.5 L	13.3	14.0	15.6	17.5	16.9
Zinc	43.3 J	v 40.8	Jv 39.6	Jv 42.1	Jv 44.2	Jv 51.2 Jv

U - NOT DETECTED

L - CONCENTRATION BETWEEN IDL & CRDL

UC - RAISED DETECTION LIMIT

J - ESTIMATED VALUE

^ - HIGH BIAS

v - LOW BIAS

R - UNUSABLE

BACKGROUND SAMPLE HIGHLIGHTED

INORGANIC COMPOUNDS

Case No.: 28507 Units: MG/KG

Traffic Number Matrix % Solids Location	MFJ-W75 SOIL 92.2 SB06	MFJ-W76 SOIL 88 SB07	MFJ-W77 SOIL 88 SB08	MFJ-W78 SOIL 94.2 SB09	MFJ-W79 SOIL 69.1 SD01	MFJ-W80 SOIL 80.4 SD02
Aluminum	6200	7440	6940	4970	4720	9660
Antimony	0.64 U J	0.67 U Jv	0.66 U Jv	0.61 U Jv	0.83 U Jv	0.72 LUCJv
Arsenic	3.4	6.4	6.0	6.6	8.2	9.6
Barium	264	161	152	106	121	300
Beryllium	0.43 LUC	0.48 LUC	0.46 LUC	0.35 LUC	0.42 L	0.65 L
Cadmium	0.21 U	0.22 U	0.22 U	0.20 U	0.28 U	0.36 L
Calcium	1010 LJ	1750 Jv	1760 Jv	842 LJv	19500 Jv	2660 Jv
Chromium	7.6	9.4	9.0	6.9	7.9	12.0
Cobalt	4.9 L	8.1 L	7.8 L	5.6 L	8.3 L	10.8 L
Copper	8.6	11.2	10.8	8.5	13.6	13.5
Iron	8070	13200	12800	9020	11100	17800
Lead	6.0	9.2	9.2	8.1	13.0	12.0
Magnesium	911 L	1850	1800	1240	4570	1960
Manganese	775	773	657	500	1010	1730
Mercury	0.09 LU	0.08 LUC	0.09 LUC	0.08 LUC	0.10 LUC	0.10 L
Nickel	11.1	14.7	13.9	10.2	9.8 L	17.4
Potassium	436 L	656 L	654 L	860 L	564 L	848 L
Selenium	0.85 U	0.89 U	0.88 U	0.81 U	1.1 U	0.48 U
Silver	0.64 U	0.67 U	0.66 U	0.61 U	0.83 U	0.24 U
Sodium	193 LJ	246 LJ	230 LJ	173 LJ	315 LJ	224 LJv
Thallium	1.3 U	1.3 U	1.3 U J	1.4 L	1.7 L	0.72 U
Vanadium	12.7	18.1	17.7	12.7	15.5	26.3
Zinc	33.6 Jv	43.5 Jv	45.5 Jv	36.0 Jv	106 Jv	58.1 Jv

U - NOT DETECTED

L - CONCENTRATION BETWEEN IDL & CRDL

UC - RAISED DETECTION LIMIT

J - ESTIMATED VALUE

^ - HIGH BIAS

v - LOW BIAS

R - UNUSABLE

BACKGROUND SAMPLE HIGHLIGHTED

INORGANIC COMPOUNDS

Case No.: 28507 Units: MG/KG

Traffic Number Matrix % Solids Location	MFJ-W81 SOIL 80.1 SD03		MFJ-W82 SOIL 84.1 SD04		MFJ-W83 SOIL 84.6 SD05		MFJ-W84 SOIL 84.5 SD06		MFJ-W85 SOIL 79.3 SD07	
Aluminum	14300		11200		6920		7490		9160	
Antimony	0.64	LUC	1.4	LUC	1.7	LUCJ	1.6	LUCJv	1.3	LUCJv
Arsenic	7.8		34.6		31.2		35.1		8.4	
Barium	161		859		781		447		165	
Beryllium	0.62	L	1.8		1.6		1.6		0.46	L
Cadmium	0.30	L	1.1	L	1.6		0.96	L	0.78	L
Calcium	2310	Jv	7470	Jv	4490	Jv	2410	Jv	2800	Jv
Chromium	15.0		25.7		14.7		18.5		10.4	
Cobalt	7.7	L	45.3		52.7		34.6		8.0	L
Copper	13.5		25.4		25.1		19.4		17.0	
Iron	18600		46400		42300		41300		17800	
Lead	6.5		38.4		41.3	7	35.8		13.1	
Magnesium	2230		2430		1750		1550		2670	
Manganese	814		6240		7050		4690		911	
Mercury	0.09	L	0.08	L	0.08	L	0.08	L	0.09	L
Nickel	19.4		51.8		69.7		37.6		18.5	
Potassium	776	L	755	L	526	L	487	L	932	L
Selenium	0.48	U	0.46	U	0.45	U	0.46	U	0.50	U
Silver	0.24	U	0.23	U	0.23	U	0.23	U	0.25	U
Sodium	300	LJ	246	LJv	270	LJv	216	LJv	259	LJv
Thallium	0.71	U	1.8	LJv	1.4	L	1.6	L	0.75	U
Vanadium	24.0		73.2		57.2		64.3		21.1	
Zinc	56.5	Jv	120	Jv	114	Jv	93.9	Jv	65.4	Jv

U - NOT DETECTED

L - CONCENTRATION BETWEEN IDL & CRDL

UC - RAISED DETECTION LIMIT

J - ESTIMATED VALUE

^ - HIGH BIAS

v - LOW BIAS

R - UNUSABLE

BACKGROUND SAMPLE HIGHLIGHTED



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6 HOUSTON BRANCH 10625 FALLSTONE RD. HOUSTON, TEXAS 77099

MEMORANDUM

Date:

October 12, 2000

Subject:

Contract Laboratory Program Data Review

From:

Marvelyn Humpdrey, Alternate ESAT RPO, 6MD-HC

To:

B. Rhotenberry, 6SF-RA

$\mathtt{Site:}\underline{}$	BPS, INC.	
Case#:	28507	
SDG# :	FGM68	

The EPA Region 6 Houston Branch ESAT data review team has completed a review of the submitted Contract Laboratory Program (CLP) data package for the referenced site. The samples analyzed and reviewed are detailed in the attached Regional data review report.

The data package is acceptable for regional use. Problems, if any, are listed in the report narrative.

If you have any questions regarding the data review report, please call me at (281) 983-2140.

Attachments

CC: R. Flores, Region 6 CLP/TPO
M. El-Feky, Region 6 Data Coordinator
Files (2)

LOCKHEED MARTIN SERVICES GROUP ESAT REGION VI 10101 SOUTHWEST FREEWAY, SUITE 500 HOUSTON, TX 77074

MEMORANDUM

DATE: October 11, 2000

TO: Melvin Ritter/Marvelyn Humphrey, ESAT RPO/Alternate

RPO, Region VI

FROM: Tom C.H. Chiang, ESAT Team Manager, Region VI

SUBJECT: CLP Data Review

REF: TDF # 6-1007A ESAT # 0-2266

ESAT Contract No. 68-D6-0005

Attached is the data review summary for Case # 28507

SDG # FGM68

Site <u>BPS. Inc.</u>

COMMENTS:

I. CONTRACTUAL ASSESSMENT OF THE DATA PACKAGE

CCS audit determined that the data package is contractually compliant. The hardcopy review found the contractually noncompliant item below that CCS is not expected to detect.

The data package arrived 3 working days late for the 14-day contractual turnaround time.

II. TECHNICAL USABILITY ASSESSMENT OF THE DATA PACKAGE

The total number of results reviewed was 279 for this data package. Some results were qualified because of technical problems. The significant technical problems are summarized below.

- A. Coeluting toxaphene peaks interfered with the identification of many pesticides for samples FG-M68 and FG-M69.
- B. The field duplicate samples have inconsistent toxaphene concentrations.

III. OTHER AREAS OF CONCERN

No temperature blank was present in the cooler used to ship the samples of this SDG.

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab	Name:	AMER	ICAN_	ANALY:	rical_	AND_T	Contract:	68W00086	·		
Lab	Code:	AATS		Case	No.:	28507	SAS No.:		SDG No.:N	IFJW69	
		ILM04	.Ø/ —9/a/ EPA _MFJ _MFJ	% o Sample W69 Sample W69 Sample W69 Sample W71 Sample	e No.	20307	Lab Sam _44309.	nple ID 09 10D 11S 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	SDG NO. :P	IEUWO 9	
Were	ICP	backg: es - v	eleme round were	nt corre	ection ata ge	ons app s appli nerated correc	lied ? ed ? before		Yes/No Yes/No Yes/No	YES YES NO_	
											_
			·	· · · · · · · · · · · · · · · · · · ·							
cond othe in t on d Mana	ition r tha his h lisket ger's ature	s of t n the ardcon te has desig	che c cond py da bee gnee,	ontrac itions ta pac n auth	ct, bo deta kage norize crifie	th tech iled abo and in d by tho d by tho	nically an ove. Rele the comput e Laborato e followin Name:	ce with the d for complease of the er-readable ry Manager g signature Steve L. M	leteness, f data conta e data subm or the e. Markham	or ined	

COVER PAGE - IN

ILM04.1

1700 West Albany / Broken Arrow, Oklahoma 74012 / Office (918) 251-2858 / Fax (918) 251-2599

SDG NARRATIVE

CONTRACT: 68W00086

CASE: 28507 SDG: MFJW69

DATE: 09/29/00

SOW NO.: ILM04.1 EPISODE NO.: 44309

INORGANIC METAL FRACTION:

Seventeen soil samples were submitted for ICP, CN and Hg analysis. No major problems occurred during the digestion or analyses of these samples. The cooler temperatures at time of receipt were at 11.2° Celsius. The cooler temperature indicator bottles were present. The lab uses a mixture of ICV-1, ICV-2, ICV-3 and ICV-4 for the ICP Initial Calibration Verification analysis. In order to obtain results for sodium and potassium within the calibration range of the TRACE ICP's, the ICV-1 reference solutions is prepared at twice the dilution suggested for the ICV-1 preparation. The sample's analyses were completed according to the following:

SWL SOP #

Method SOP is based

SWL-IN-202

ILM03.0/04.0 (analysis of Hg by cold vapor)

Initial and Continuing Calibration Checks: No problems

Initial and Continuing Calibration Blanks: The following elements showed low level concentrations below the Contract Required Detection Limit in the Calibration Blank: Al, Sb, Be, Ca, Fe, Zn
No action required.

Linearity near the CRDL (CRA & CRI): The CRI standard was outside of our in house warning limits of 70-130%R for the following elements: Se No action required.

Preparation Blank: The following elements showed low level concentrations below the Contract Required Detection Limit in the Preparation Blank: Al, Ca, Cr, Fe, Hg, Ni, Zn No action required.

Lab Control Spikes: No problems.

Matrix Spikes: The following elements were outside the control limits of 75-125% recovery: Sb, S, Ag

All associated samples were flagged with a "N" on Form I's. No action required.

Duplicate(s): The following elements were outside the control limits of 0-20% RPD: none All associated samples were flagged with a "*" on Form I's. No action required.

AMERICAN ANALYTICAL & TECHNICAL SERVICES, INC

1700 West Albany / Broken Arrow, Oklahoma 74012 / Office (918) 251-2858 / Fax (918) 251-2599

Serial Dilution (ICP): The soil serial dilution was outside the control limits of 10% for the following elements: Ca, Na, Zn

All associated samples were flagged with an "E" on Form I's. No action required.

Sincerely,

Steve Markham

Operations Manager

EPA	SAMPLE	NO
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ILM04.1

Lab Name: AMERICAN A	NALYTICAL AND T	Contract: 68W00086	MFJW69
Lab Code: AATS		7_ SAS No.:	SDG No.: MFJW69
Matrix (soil/water):	SOIL_	Lab Sampl	e ID: 44309.09
Level (low/med):	LOW	Date Rece	eived: 09/13/00
% Solids:	89.5		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	М
7429-90-5	Aluminum	3960	-		P
7440-36-0	Antimony -	0.65	Ū	N	P_
7440-38-2	Arsenic	12.0	1	⁻	P
7440-39-3	Barium	74.1	-		P_
7440-41-7	Beryllium	0.26	B		P ⁻
7440-43-9	Cadmium	0.22	U	l ———	P
7440-70-2	Calcium	739		E	$\bar{\mathbf{p}}^{-}$
7440-47-3	Chromium	6.0			P
7440-48-4	Cobalt	4.8	B		P
7440-50-8	Copper	8.0			P_
7439-89-6	Iron	7520	-		P_
7439-92-1	Lead	9.8	-		P_
7439-95-4	Magnesium	1020	B		P_
7439-96-5	Manganese	352			P_
7439-97-6	Mercury	0.08	B		C₹
7440-02-0	Nickel	7.3	В		P
7440-09-7	Potassium	1020	В		P_
7782-49-2	Selenium	0.87	U	N	P_
7440-22-4	Silver	0.65	U	N	P_
7440-23-5	Sodium	209	В	E	P
7440-28-0	Thallium	1.3	U		P_
7440-62-2	Vanadium	10.5			P_
7440-66-6	Zinc	43.3		E	P_
			-		-
			_		

Color Before:	BROWN	Clarity Before:	Texture: MEDIUM
Color After:	COLORLESS	Clarity After: CLEAR_	Artifacts:
Comments:			

AMPLE	NO
	AMPLE

Lab Name: AMERICAN_A	NALYTICAL_AND_T Contract: 68W00086	MFJW70
Lab Code: AATS	Case No.: 28507_ SAS No.:	SDG No.: MFJW69
Matrix (soil/water):	SOIL_ Lab Samp	ple ID: 44309.12
Level (low/med):	LOW Date Rec	ceived: 09/13/00
% Solids:	_91.3	

Concentration Units (ug/L or mg/kg dry weight): MG/KG

					
CAS No.	Analyte	Concentration	C	Q	М
7429-90-5	Aluminum	5530	-		P
7440-36-0	Antimony	0.64	ប៊		P-
7440-38-2	Arsenic	4.5	۱۲		$ \tilde{\mathbf{p}}^{-} $
7440-39-3	Barium	115			P-
7440-41-7	Beryllium	0.42	B		P-
7440-43-9	Cadmium	0.21	ប៊		P-
7440-70-2	Calcium	1720		E	P-
7440-70-2	Chromium	7.6		e	P-
			B		P-
7440-48-4	Cobalt	6.3	P		P-
7440-50-8	Copper	8.7			P-
7439-89-6	Iron	9880	_		P-
7439-92-1	Lead	6.5	_		
7439-95-4	Magnesium	1620	_		P_
7439-96-5	Manganese	541	_		P
7439-97-6	Mercury	0.07	B		C₹
7440-02-0	Nickel	11.6	_		P_
7440-09-7	Potassium	573	B		P_
7782-49-2	Selenium_	0.86		N	P_
7440-22-4	Silver	0.64	U	N	P_
7440-23-5	Sodium	294	В	E	P_
7440-28-0	Thallium_	1.3	U		P_
7440-62-2	Vanadium_	13.3			P_
7440-66-6	Zinc	40.8		E	P_

		FORM I - IN	ILM04.1
Comments:			
Color After:	COLORLESS	Clarity After: CLEAR_	Artifacts:
Color Before:	BROWN	Clarity Before:	Texture: MEDIUM

EPA SAMPLE NO.

Lab	Name:	AMERICAN_ANAI	LYTICAL_AND_	T Contr	ract: 6	8₩00086	MFJW7:	L
Lab	Code:	AATS	Case No.: 2	8507_ 8	SAS No.	•	SDG No.:	MFJW69

Matrix (soil/water): SOIL_

Lab Sample ID: 44309.13

Level (low/med):

Date Received: 09/13/00

% Solids:

LOW___ _82.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

			_		
CAS No.	Analyte	Concentration	С	Q	М
7429-90-5	Aluminum	5490	-		P
7440-36-0	Antimony-	0.69	Ū	N	P_
7440-38-2	Arsenic	5.2			P_
7440-39-3	Barium —	116	_		P_
7440-41-7	Beryllium	0.36	B		P_
7440-43-9	Cadmium	0.23	บ		P_
7440-70-2	Calcium	1550		E	P_
7440-47-3	Chromium	7.5	_		P_
7440-48-4	Cobalt	6.3	B		P_
7440-50-8	Copper	14.1			P_
7439-89-6	Iron	10100	_		P_
7439-92-1	Lead	6.8	_		P_
7439-95-4	Magnesium	1580	_		P_
7439-96-5	Manganese	493	_		P_
7439-97-6	Mercury	0.09	B		C₹
7440-02-0	Nickel	11.1			P
7440-09-7	Potassium	575	B		P_
7782-49-2	Selenium	0.92	U	N	P_
7440-22-4	Silver -	0.69	U	_N	P_
7440-23-5	Sodium	232	В	E	P_
7440-28-0	Thallium	1.4	U		P ⁻
7440-62-2	Vanadium_	14.0			P_
7440-66-6	Zinc	39.6	-	E	P_
			-		-
			-		
		1	-		

Color Before:	BROWN	Clarity Before:	Texture: MEDIUM
Color After:	COLORLESS	Clarity After: CLEA	R_ Artifacts:
Comments:			
•			

FORM I - IN

EPA	SAMPLE	NO
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ILM04.1

Lab Name: AMERICAN_A	NALYTICAL_AND_T Con	tract: 68W00086	MFJW72
Lab Code: AATS	Case No.: 28507_	SAS No.:	SDG No.: MFJW69
Matrix (soil/water):	SOIL_	Lab Sample	E ID: 44309.14
Level (low/med):	LOW	Date Recei	ved: 09/13/00
% Solids:	_91.7		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

					_
CAS No.	Analyte	Concentration	С	Q	М
CAS No. 7429-90-5 7440-36-0 7440-38-2 7440-39-3 7440-41-7 7440-43-9 7440-47-3 7440-48-4 7440-50-8 7439-96-5 7439-96-5 7439-96-5 7439-97-6 7440-02-0 7440-09-7 7782-49-2 7440-23-5 7440-28-0 7440-62-2	Analyte Aluminum Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium Silver Sodium Thallium Vanadium	Concentration			X
7440-66-6	Zinc	42.1		E	P_

Color Before:	BROWN	Clarity Before: _		Texture: N	MEDIUM
Color After:	COLORLESS	Clarity After: C	LEAR_	Artifacts: _	****
Comments:					
•					

EPA	SAMPLE	NO.
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Lab Name: AMER	ICAN_ANALYT	ICAL_AND_T	Contract: 6	BWC	0086		MFJW73
Lab Code: AATS	Ca	se No.: 28	507_ SAS No.	: _		SI	DG No.: MFJW69
Matrix (soil/w	ater): SOIL			La	b Samp	le :	ID: 44309.15
Level (low/med): LOW_	-	•	Da	te Rece	eive	ed: 09/13/00
% Solids:	_91.	6					
Co	ncentration	Units (ug	/L or mg/kg dry	y w	reight)	: M(G/KG
	CAS No.	Analyte	Concentration	С	Q	М	
	7440-36-0	Aluminum_ Antimony_ Arsenic	7530 0.63	ਹ	N	P P	. •

7440-39-3	Barium —	142	-		P_	
7440-41-7	Beryllium	0.45	B		·P	
7440-43-9	Cadmium	0.21	U		P	
7440-70-2	Calcium	1600		E	P_	
7440-47-3	Chromium	9.3	-		P_	
7440-48-4	Cobalt -	7.3	B		P_	
7440-50-8	Copper	11.1			P	
7439-89-6	Iron	12500	_		\mathbf{p}^{-}	
7439-92-1	Lead	9.0	_		P^-	
7439-95-4	Magnesium	1780	_		p	
7439-96-5	Manganese	653	-		\mathbf{P}^{-}	İ
7439-97-6	Mercury	0.08	B		c⊽l	ĺ
7440-02-0	Nickel -	14.4			P	ı
7440-09-7	Potassium	723	B		\mathbf{P}^{-}	l
7782-49-2	Selenium	0.84	บ	N	\mathbf{p}^{-}	.
	1		I		1	1

0.63 U 236 B 1.3 B

17.5

44.2

P.

Silver

Sodium Thallium Vanadium_

Zinc

7440-22-4 7440-23-5 7440-28-0 7440-62-2

7440-66-6

Color Before:	BROWN	Clarity Before: _		Texture:	MEDIUM
Color After:	COLORLESS	Clarity After: C	LEAR_	Artifacts:	
Comments:					

FORM I - IN

EPA SAMPLE NO.

MFJ	W74	
 		 . I

Lab Name: AMERICAN_ANALYTICAL_AND_T Contract: 68W00086_

Lab Code: AATS__ Case No.: 28507_ SAS No.: ____ SDG No.: MFJW69

Matrix (soil/water): SOIL

Lab Sample ID: 44309.16

Level (low/med): LOW

Date Received: 09/13/00

% Solids:

80.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No. Analyte Concentration C Q	M
T429-90-5	

Color Before:	BROWN	Clarity Before:		Texture:	MEDIUM
Color After:	COLORLESS	Clarity After:	CLEAR_	Artifacts:	
Comments:					
	777				

FORM I - IN

EPA	SAMPLE	NO.
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Lab	Name:	AMERICAN_ANA	LYTICAL_AND_T	Contract:	68W00086	MFJW75	
Lab	Code:	AATS	Case No.: 2850	7_ SAS No	o.:	SDG No.:	MFJW69

Matrix (soil/water): SOIL_

Lab Sample ID: 44309.17

Level (low/med):

LOW___ Date Re

Date Received: 09/13/00

% Solids:

_92.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

1			-		_
CAS No.	Analyte	Concentration	С	Q	М
7429-90-5	Aluminum	6200			<u>P_</u>
7440-36-0	Antimony	0.64	Ū	N	P_
7440-38-2	Arsenic	3.4			P_
7440-39-3	Barium	264	_		P_
7440-41-7	Beryllium	0.43	B		P_
7440-43-9	Cadmium	0.21	U		P_
7440-70-2	Calcium	1010	В	E	P
7440-47-3	Chromium	7.6	l		P
7440-48-4	Cobalt	4.9	B		P_
7440-50-8	Copper	8.6			P_
7439-89-6	Iron	8070	_		P_
7439-92-1	Lead	6.0			P_
7439-95-4	Magnesium	911	B		P
7439-96-5	Manganese	775			P_
7439-97-6	Mercury	0.09	$\overline{\mathbf{B}}$		C₹
7440-02-0	Nickel	11.1			P
7440-09-7	Potassium	436	B		P_
7782-49-2	Selenium	0.85	U	N	P_
7440-22-4	Silver	0.64	ש	N	P_
7440-23-5	Sodium	193	В	E	P
7440-28-0	Thallium	1.3	U		P_
7440-62-2	Vanadium_	12.7			P
7440-66-6	Zinc	33.6	-	E	P_
	-				-
			_		
I	1	·	-		

Color Before:	BROWN	Clarity Before:	Texture: MEDIUM
Color After:	COLORLESS	Clarity After: CLEAR_	Artifacts:
Comments:			

EPA SAMPLE NO.

ILM04.1

Lab Name: AMERICAN_A	NALYTICAL_AND_T Cor	ntract: 68W00086	MFJW76
Lab Code: AATS	Case No.: 28507_	SAS No.:	SDG No.: MFJW69
Matrix (soil/water):	SOIL_	Lab Sampl	e ID: 44309.18
Level (low/med):	LOW	Date Rece	ived: 09/13/00
% Solids:	_88.0		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

1					
CAS No.	Analyte	Concentration	С	Q	М
7429-90-5	Aluminum	7440	-		P
7440-36-0	Antimony -	0.67	ប៊	N	P^-
7440-38-2	Arsenic -	6.4			P-
7440-39-3	Barium -	161	_		P ⁻
7440-41-7	Beryllium	0.48	B		P ⁻
7440-43-9	Cadmium	0.22			P_
7440-70-2	Calcium	1750		E	P_
7440-47-3	Chromium	9.4	_		P_
7440-48-4	Cobalt -	8.1	B		P_
7440-50-8	Copper	11.2			P^-
7439-89-6	Iron	13200	-		P_
7439-92-1	Lead	9.2	_		P_
7439-95-4	Magnesium	1850			P_
7439-96-5	Manganese	773	_		P
7439-97-6	Mercury	0.08	B		C∇
7440-02-0	Nickel	14.7			P
7440-09-7	Potassium	656	B		P_
7782-49-2	Selenium_	0.89	U	N	P_
7440-22-4	Silver	0.67	U	N	P_
7440-23-5	Sodium	246	В	E	$ P_{ }$
7440-28-0	Thallium_	1.3	U		P_
7440-62-2	Vanadium_	18.1	<u> _</u>		P_
7440-66-6	Zinc	43.5		E	P_

Color Before:	BROWN	Clarity Before:		Texture:	MEDIUM
Color After:	COLORLESS	Clarity After:	CLEAR_	Artifacts:	
Comments:					

EPA SAMPLE NO.

MFJW77
•

Lab Name: AMERICAN_ANALYTICAL_AND_T Contract: 68W00086_

Lab Code: AATS__ Case No.: 28507_ SAS No.: ____ SDG No.: MFJW69

ILM04.1

Matrix (soil/water): SOIL

Lab Sample ID: 44309.19

Level (low/med): LOW

Date Received: 09/13/00

% Solids:

_88.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

				· · · · · · · · · · · · · · · · · · ·	
CAS No.	Analyte	Concentration	C	Q	M
			_		
7429-90-5	Aluminum_	6940		ļ	P
7440-36-0	Antimony_	0.66	Ū	N_	P_
7440-38-2	Arsenic	6.0	_		P_
7440-39-3	Barium	152			P_
7440-41-7	Beryllium	0.46	B		P_
7440-43-9	Cadmium	0.22	U		P_
7440-70-2	Calcium	1760		E	P_
7440-47-3	Chromium	9.0	_		P
7440-48-4	Cobalt	7.8	\overline{B}		P_
7440-50-8	Copper	10.8			P_
7439-89-6	Iron	12800	_		P_
7439-92-1	Lead	9.2	_		P_
7439-95-4	Magnesium	1800	_		\mathbf{p}^{-}
7439-96-5	Manganese	657	-		P_
7439-97-6	Mercury	0.09	B		Ċ₹
7440-02-0	Nickel	13.9			P
7440-09-7	Potassium	654	B		P^-
7782-49-2	Selenium	0.88	บ	N	$ \hat{p}^- $
7440-22-4	Silver	0.66	บั		\mathbf{P}^{-}
7440-23-5	Sodium	230	В	— <u></u>	P_
7440-23-3	Thallium	1.3	Ü		P-
7440-62-2	Vanadium	17.7	٦		P-
7440-62-2	Zinc	45.5	-	E	P-
/440-00-0	4111C	43.3	-		
			_		[
l	l l	l	 		l l

Color Before:	BROWN	Clarity Before:	Texture: MEDIUM
Color After:	COLORLESS	Clarity After: CLEA	R_ Artifacts:
Comments:			

EPA SAMPLE NO.

	MFJW78	
86	MFUW/6	
~~_	l l	

Lab Name: AMERICAN ANALYTICAL AND T Contract: 68W000

Lab Code: AATS Case No.: 28507 SAS No.: SDG No.: MFJW69

Matrix (soil/water): SOIL

Lab Sample ID: 44309.20

Level (low/med):

LOW

Date Received: 09/13/00

% Solids:

_94.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

·	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		_	,	
CAS No.	Analyte	Concentration	С	Q	М
7429-90-5 7440-36-0 7440-38-2 7440-39-3 7440-41-7 7440-43-9	Aluminum_ Antimony_ Arsenic_ Barium_ Beryllium Cadmium_	4970 0.61 6.6 106 0.35 0.20			
7440-70-2 7440-47-3 7440-48-4 7440-50-8 7439-89-6 7439-92-1	Calcium_ Chromium_ Cobalt_ Copper_ Iron_ Lead_	842 6.9 5.6 8.5 9020 8.1	B B -	E	
7439-95-4 7439-96-5 7439-97-6 7440-02-0 7440-09-7 7782-49-2 7440-22-4	Magnesium Manganese Mercury Nickel Potassium Selenium Silver	500 0.08 10.2 860 0.81 0.61	E E E	NN	
7440-23-5 7440-28-0 7440-62-2 7440-66-6	Sodium Thallium Vanadium Zinc	173 1.4 12.7 36.0) B B B I I I		

olor Before:	BROWN	Clarity Before:		Texture: MEDI	U
olor After:	COLORLESS	Clarity After:	CLEAR_	Artifacts:	_
comments:					

FORM I - IN

EPA SAMPLE NO.

MET	W79	_
MFC	W / 3	

Lab Name: AMERICAN_ANALYTICAL_AND_T Contract: 68W00086_

Lab Code: AATS__ Case No.: 28507_ SAS No.: ____ SDG No.: MFJW69

Matrix (soil/water): SOIL_

Lab Sample ID: 44309.21

Level (low/med):

LOW

Date Received: 09/13/00

% Solids:

_69.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
CAS No.	Analyte	Concentration	С	Q	М
7429-90-5 7440-36-0 7440-38-2 7440-39-3 7440-41-7 7440-43-9 7440-47-3 7440-47-3 7440-48-4 7440-50-8 7439-89-6 7439-95-4 7439-96-5 7439-97-6	Analyte Aluminum Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Mercury	Concentration 4720 0.83 8.2 121 0.42 0.28 19500 7.9 8.3 13.6 11100 13.0 4570 1010 0.10		Q	M PPPPPPPPPPPPPP
7440-02-0 7440-09-7 7782-49-2 7440-22-4 7440-23-5 7440-28-0 7440-66-6	Nickel Potassium Selenium Silver Sodium Thallium Vanadium Zinc	9.8 564 1.1 0.83 315 1.7 15.5 106			
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Color Before:	BROWN	Clarity Before:		Texture: MEDIU
Color After:	COLORLESS	Clarity After: CI	LEAR_	Artifacts:
Comments:	•			

FORM I - IN

EPA	SAMPLE	NO	•

Lab Name: AMERICAN_A	NALYTICAL_AND_T Contract: 6	8W00086
Lab Code: AATS	Case No.: 28507_ SAS No.	: SDG No.: MFJW69
Matrix (soil/water):	SOIL_	Lab Sample ID: 44309.22
Level (low/med):	LOW	Date Received: 09/13/00
t Colida.	00 4	

Concentration Units (ug/L or mg/kg dry weight): MG/KG

		,				
	CAS No.	Analyte	Concentration	C	Q	М
	7429-90-5 7440-36-0 7440-38-2 7440-39-3 7440-41-7 7440-43-9 7440-70-2 7440-47-3	Aluminum_Antimony_Arsenic_Barium_Beryllium_Cadmium_Calcium_Chromium	9660 0.72 9.6 300 0.65 0.36 2660	B B B		
	7440-48-4 7440-50-8 7439-89-6 7439-92-1 7439-95-4 7439-96-5 7439-97-6	CobaltCopperIronLead_MagnesiumManganeseMercury_	10.8 13.5 17800 12.0 1960 1730 0.10	B		
	7440-02-0 7440-09-7 7782-49-2 7440-22-4 7440-23-5 7440-28-0 7440-62-2 7440-66-6	Nickel Potassium Selenium Silver Sodium Thallium Vanadium Zinc	17.4 848 0.48 0.24 224 0.72 26.3 58.1		N NE E	
1				_		

BROWN	Clarity Before:	Texture: MEDIUM
COLORLESS	Clarity After: CLEAR_	Artifacts:
		

FORM I - IN

EPA	SAMPLE	NO
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Lab Name: AMERICAN_A	NALYTICAL_AND_T	Contract: 68W00086	MFJW81
Lab Code: AATS	Case No.: 2850	7_ SAS No.:	SDG No.: MFJW69
Matrix (soil/water):	SOIL_	Lab Sample	e ID: 44309.23
Level (low/med) ·	T.OW	Date Rece	ived. 09/13/00

% Solids:

_80.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

olor Before:	BROWN	Clarity Before:		Texture:	MEDIUM
olor After:	COLORLESS	Clarity After:	CLEAR_	Artifacts:	
omments:					
		FORM I - IN		ILM	04.1

EPA SAMPLE NO.

Lab Name: AMER	ICAN_ANALYT	ICAL_AND_T	Contract: 68	3 W (00086		MFJW82	:
Lab Code: AATS	Ca	se No.: 285	SAS No.	: _	·	SD	G No.: MFJW69	
Matrix (soil/wa	ater): SOIL	_		La	ab Sampl	e I	D: 44309.24	
Level (low/med)): LOW_	-		Da	ate Rece	ive	d: 09/13/00	
% Solids:	_84.:	1						
Coı	ncentration	Units (ug	/L or mg/kg dry	7 V	veight):	MG	k/KG	
	CAS No.	Analyte	Concentration	С	Q	М		
	7440-36-0	Aluminum_ Antimony_	11200 1.4	— В		P_ P_		
	7440-39-3	Arsenic Barium	34.6 859	-				
	7440-43-9	Beryllium Cadmium_ Calcium	$ \begin{array}{c} $	B		P		
	7440-47-3	Chromium_ Cobalt	25.7 45.3	<u> </u>		P P		
	7440-50-8 7439-89-6	Copper	25.4 46400	_		P		
	7439-95-4	Lead Magnesium	38.4 2430	_		P_P		
	7439-97-6	Manganese Mercury Nickel	6240 0.08 51.8	B		P CV		
	7440-09-7	Potassium Selenium	755 0.46	B U		P P		
	7440-22-4	Silver Sodium	0.23		N	P P		
	7440-28-0		1.8			P_		

Color Before:	BROWN	Clarity Before:	Texture: MEDIUM
Color After:	COLORLESS	Clarity After: CLEAR_	Artifacts:
Comments:			

Vanadium_ Zinc____

7440-62-2 7440-66-6

FORM I - IN

120

EPA	SAMPLE	NO.

Lab Name: AMERICAN_Al	NALYTICAL_AND_T	Contract: 68W00086	MFJW83
Lab Code: AATS	Case No.: 28507	SAS No.:	SDG No.: MFJW69
Matrix (soil/water):	SOIL_	Lab Sample	e ID: 44309.25
Level (low/med):	LOW	Date Rece	ived: 09/13/00

% Solids: _84.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No. An	alyte Concentration	on C	Q M
7429-90-5 7440-36-0 7440-38-2 7440-39-3 7440-41-7 7440-43-9 7440-47-3 7440-47-3 7440-48-4 7440-50-8 7439-89-6 7439-92-1 7439-95-4 7439-96-5 7439-96-5 7439-97-6 7440-02-0 7440-02-0 7440-02-0 7440-02-0 7440-22-4 7440-23-5 7440-28-0 Tha	minum 692 imony 1. enic 31. ium 78 yllium 1. mium 1. cium 449 comium 14. calt 52. cer 25. ca 4230 di 41. calt 1750 cel 69. cassium 520 cel 69. cassium 0.41 cel 69. cassium 270 dium 1. calt 52. cassium 520 dium 1. calt 52. cassium 520 dium 1. calt 52. cassium 520 dium 1. calt 53.	7 B	Q M P P P P P P P P P P P P P P P P P P P

Color Before:	BROWN	Clarity Before:	Texture: MEDIUM
Color After:	COLORLESS	Clarity After: CLEAR_	Artifacts:
Comments:			
	•	FORM I - IN	ILM04.1

	EPA	SAMPLE	NO
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ILM04.1

Lab Name: AMERICAN_A	NALYTICAL_AND_T	Contract: 68W00086	MFJW84
Lab Code: AATS	Case No.: 2850	7_ SAS No.:	SDG No.: MFJW69
Matrix (soil/water):	SOIL_	Lab Sample	e ID: 44309.26
Level (low/med):	LOW	Date Rece	ived: 09/13/00

% Solids:

_84.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

					— I
CAS No.	Analyte	Concentration	С	Q	М
7429-90-5	Aluminum	7490	-		P
7440-36-0	Antimony_	1.6	B	N	P
7440-38-2	Arsenic	35.1			P_
7440-39-3	Barium	447	_		P
7440-41-7	Beryllium	1.6			P_
7440-43-9	Cadmium_	0.96	В		P_
7440-70-2	Calcium	2410		E	P_
7440-47-3	Chromium	18.5			P_
7440-48-4	Cobalt	34.6			P_
7440-50-8	Copper	19.4			P_
7439-89-6	Iron	41300			P_
7439-92-1	Lead	35.8			P_
7439-95-4	Magnesium	1550	_		P_
7439-96-5	Manganese	4690			P_
7439-97-6	Mercury_	0.08	B		C∇
7440-02-0	Nickel	37.6			P_
7440-09-7	Potassium	487	B		P_
7782-49-2	Selenium_	0.46	U	N	P_
7440-22-4	Silver	0.23	U	N	P_
7440-23-5	Sodium	216	В	E	P_
7440-28-0	Thallium	1.6	В		P_
7440-62-2	Vanadium	64.3			P
7440-66-6	Zinc	93.9		E	P_
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					$ \bot $

Color Before:	BROWN	Clarity Before:	Texture: MEDIUM
Color After:	COLORLESS	Clarity After: CLE	AR_ Artifacts:
Comments:	•		

EPA SAMPLE N

•	. •	TMOVGMMIC V	WALLSES DAIR "	TITITI		
Lab Name: AMER	MFJW85					
Lab Code: AATS	Car	se No.: 28!	507_ SAS No.		SDG No.:	MFJW69
Matrix (soil/wa	ater): SOIL	-		Lab Samp	le ID: 4430	9.27
Level (low/med)): LOW	···		Date Rece	eived: 09/1	3/00
% Solids:	_79.:	3				
Cor	ncentration	Units (ug,	L or mg/kg dry	y weight)	: MG/KG	
	CAS No.	Analyte	Concentration	C Q	М	
	7440-38-2 7440-39-3 7440-41-7 7440-43-9 7440-70-2 7440-48-4 7440-50-8 7439-89-6 7439-92-1 7439-95-4 7439-96-5 7439-97-6 7440-02-0 7440-09-7 7782-49-2	Antimony_ Arsenic_ Barium_ Beryllium Cadmium_	9160 1.3 8.4 165 0.46 0.78 2800 10.4 8.0 17.0 17800 13.1 2670 911 0.09 18.5 932 0.50 0.25 259 0.75 21.1	B E B U N U N B E		
Color Before:	BROWN	Clarit	y Before:	· .	Texture:	MEDIUM
Color After:	COLORLESS	Clarit	y After: CLE	AR_	Artifacts:	
Comments:						

FORM I - IN

APPENDIX C

Designate: Comp. Grab	(Sas)	Preservative: Yes No Volatile Organics (VOA) Semi Volatiles (ABN) Pesticides/PCB Metals Cyanide	Designate:	Ccmp.	A	Volatile Org Semi Volati Pesticides/P	ganics (VOA) iles (ABN)	
Time 6937	Samplers (Signatures)	Alkalinity/Hardness TCLP VOA ABN	Time	0837	Samplers (Signature)	Cyanide Alkalinity/Ha TCLP VOA		
Month/Day/Year 4 12 00	Š	METALS Asbestos Dioxin Oil and Grease	Month/Day/Year	1/2/00	Sam	ABN META Asbestos Dioxin Oil and Gre		
Station No.	ocation	Remarks:	Station No.	1055	ation	Remarks:	ase	
Project Code CLP Case No.	Concentration: Concentration: M H		Project Code CLP Case No		Tag Numb	1	on: M Lab Sample No. J=CM G	н 3

	Grab		Preservative: LCE Yes Yes No		;e;	Grab		Preservativ		No □
Designate:	1		Volatile Organics (VOA)	П	Designate:			Volatile Or	ganics (V0	DA)
Desi		1	Semi Volatiles (ABN)		Ö	.		Semi Volat	tiles (ABN)	1
	Сотр		Pesticides/PCB	V		Comp	1-	Pesticides/	PCB	
	ľ		Metals			- .,	11		_Metals	
	<u> </u>	es es	Cyanide			İ	Samplers (Wighatures)	Cyanide		
ma	- 1	Samplers (Signatures)	Alkalinity/Hardness		Tine	7	That &	Alkalinity/H	lardness	
Time	2	(Sign	TCLP		Ę	6	1 1 E	TCLP		
	0	siers	□ VOA			0962	To local	U VOA	١	
	0	Sam	☐ ABN				San	ABN	J	
y∕⁄ea	0		☐ METALS		ay/Ye	•			TALS	
Month/Day/Year	00/		Asbestos		Month/Day/Year	1/12/00		Asbestos		
Mont	12		Dioxin		∑	12		Dioxin		
~	9		Oil and Grease			0%		Oil and Gro	ease	
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Station No.	N				Station No.	2		Remarks:		
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	1	atio				3	Location			
		Ě	Concentration:		\$ 0		등 기 등	Concentrat	ion:	
Project Code	2	Station Location	□ L □ M □ H	1	Project Code CLP Case No.		Station	r D	□м	□н
ري م اور در	5	Tag Numb	er Lab Sample No.		Project		Tag Numb	er	Lab Sample	No.
₹ 5	រ	-	l '		~ 0		6-19	9446	ELM	7. 41
-		0- T2	19447 F6M64	1 527		1	<u> </u>	W A LA	½ U.S.GPC	(O T 0:1996-761-527

			Preservative: 1CE			Grab de /		Preservati	ve: <u>108</u>	
	Grab		Yes 🖭 No 🗆		ite:	2		Yes [1	No 🗆
Designate:			Volatile Organics (VOA)		Designate:			Volatile Or	ganics (VC	
Desig			Semi Volatiles (ABN)		۵	a		Semi Vola	tiles (ABN)	V
	Comp.		Pesticides/PCB			Comp		Pesticides/	PCB	
	ပိ	1. 1.	Metals				13		Metals_	
		112	Cyanide			<u> </u>	11 13	Cyanide		
		True V	Alkalinity/Hardness		OD	'	The state of the s	Alkalinity/l	lardness	
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_	6701	Samplers (Signatures)	□ VOA			10 (4	Samplers (Signature	U vo	1	
	27	ald M	☐ VOA		<u></u>		Sam	☐ ABI	V	
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			Oil and Grease							
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		0-TS	99450 FGMGS				<u>-</u>			0:1996 - 761-527

			Preservative: 1CE			١		Preservative: 10	`£	
	gg/		Yes ✓ No			Grab		Yes 🔽	No 🗆	
Designate:			Volatile Organics (VOA)		Designate:			Volatile Organics (V	(OA)	
Desiç			Semi Volatiles (ABN)		Desig		4,	Semi Volatiles (ABN	۷)	
_	Comp.	8	Pesticides/PCB		_	Сотр.	14	Pesticides/PCB]
	ပိ	13	Metals			ပိ	11/11	Metals		4
	L	1/1	Cyanide			J	$\mathcal{A}_{\mathfrak{S}}$	Cyanide		4
	١.,	War and the second	Alkalinity/Hardness			h	at C	Alkalinity/Hardness		-
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	9	Samplers (Sign	□ VOA			0	s	□ VOA		4
		amp	ABN				yamb	☐ ABN		-
Month/Day/Year	ø	S	☐ METALS		Month/Day/Year	0		☐ METALS		4
/Day	20		Asbestos		/Oay	1/2/00		Asbestos		4
font	4/12/00		Dioxin		Aont	72		Dioxin		- '
	ar,		Oil and Grease			<i>P.</i> /		Oil and Grease		\dashv
م	7	-				7				4.
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		ğ	Concentration:				ا ق	Concentration:		
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Ġ.		Pesticides	/PCB		V	•	u	ġ	Z	Pesticides/	РСВ		
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	· /1	Cyanide						<u> </u>	1/1	Cyanide			
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ø	S	☐ ME	TALS				Year	0	S	☐ MET	ALS		
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7		Dioxin					onth	2		Dioxin			
2		Oil and Gr	ease				Σ 	0.		Oil and Gr	ease		
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	Poca	Concentrat	ion:						Poca	Concentrat	ion:		
		ΔL	□м	Пн			t Code	j	Station	1	□м	□ ⊦	1
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	Ī	Station Location Samplers (Signatures)	Volatile O Semi Vola Pesticides Cyanide Alkalinity/l TCLP ABI Asbestos Dioxin Oil and Gr Remarks: Concentrate	Volatile Organics (V Semi Volatiles (ABN Pesticides/PCB Metals Cyanide Alkalinity/Hardness TCLP VOA ABN METALS Asbestos Dioxin Oil and Grease Remarks: Concentration: Tag Number Lab St	Volatile Organics (VOA) Semi Volatiles (ABN) Pesticides/PCB Metals Cyanide Alkalinity/Hardness TCLP VOA ABN METALS Asbestos Dioxin Oil and Grease Remarks: Concentration: Tag Number Volatile Organics (VOA) Semi Volatiles (ABN) Pesticides/PCB Metals Cyanide Alkalinity/Hardness TCLP VOA ABN METALS Asbestos Dioxin Oil and Grease	Volatile Organics (VOA) Semi Volatiles (ABN) Pesticides/PCB Metals Cyanide Alkalinity/Hardness TCLP VOA ABN METALS Asbestos Dioxin Oil and Grease Remarks: Concentration: Image: Number Lab Sample No.	Volatile Organics (VOA) Semi Volatiles (ABN) Pesticides/PCB Metals Cyanide Alkalinity/Hardness TCLP VOA ABN METALS Asbestos Dioxin Oil and Grease Remarks: Concentration: VL	Ves V No	Ves V No	Ves V No	Volatile Organics (VOA) Semi Volatile Organic	Ves V No	Yes No

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			Preservative: LCE			٠			e: ICE	
	Gag gag		Yes 🗹 No 🛚]		Grab		Yes 🖸	No.	
Designate:			Volatile Organics (VOA)		Designate:			Volatile Org	anics (VOA)	
esig			Semi Volatiles (ABN)	V	Desig			Semi Volati	les (ABN)	
	Comp.	4	Pesticides/PCB		_	Сотр		Pesticides/F	CB	
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		1/1/	Cyanide				11.12	Cyanide		
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ear	~	S	☐ METALS		Year	00	Š	☐ MET	ALS	
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inth/i	7		Dioxin		onth/	171/6		Dioxin		
Š	6		Oil and Grease		ž	6,		Oil and Gre	ease	
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Project Code CLP Case No.		Tag Numb	er Lab Sample N	i lo.	Project Code	<u>.</u>	Tag Numt	1	Lab Sampl	e No.
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			₹¿U.S.GPO:1996 – 70	 61-527			*****		☆ U.S.GPO:1996	- 761-527

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			Preservative: LCE		3		Preservativ	e: [C]		
	ag 🗸		Yes 🖳 No 🗌		Grab		Yes U		No 🗆	
Designate:	7		Volatile Organics (VOA)	Designate:			Volatile Org	ganics (VC	A)	_
esigi			Semi Volatiles (ABN)	Desiç			Semi Volat	iles (ABN)		_]_
	ğ	8	Pesticides/PCB	_	Сотр		Pesticides/F	PCB	L	
	Comp	13	Metals		ც ,	\mathbf{Z}		_Metals		_
	<u> </u>	11/2	Cyanide			11/1	Cyanide			_
		\$ 15	Alkalinity/Hardness		\sim /		Alkalinity/H	ardness		
Time	5	ig / W	TCLP	<u>a</u>	6	H &	TCLP	· · · · · · · · · · · · · · · · · · ·		_
, F	080	ις (δ)	VOA	Time	<u>م</u>	J S	☐ VOA	\		_
		Samplers (Signatures)	□ ABN			Samplers (Signature	☐ ABN	<u> </u>		
ea.		S	☐ METALS	Year	3	ισ.	☐ MET	ALS		
Sy.	4		Asbestos	Day/	2		Asbestos			
Month/Day/Year	1		Dioxin	Month/Day/Year	4/12/01		Dioxin			
. \$	4/2/16		Oil and Grease	ž	a.		Oil and Gre	ease		
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	4.7	Station Location	Concentration:			Station Location	Concentrat	ion:		
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& ರ	5	6-18	33870 F6M72	<u>د</u> ر		6-18	33871	1-6-1	472	<u></u>
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	Grab		Preservative: 1CE Yes V No				Grab		Yes 🗹	N	o 🗆
ë	07					æte:		ļ	Volatile Orga	nics (VOA)	
Designate:	<u></u>		Volatile Organics (VOA)		_	Designate:		,	Semi Volatile		
Desi		1	Semi Volatiles (ABN)	1		ă	g		Pesticides/P0		~
	Сотр	1	Pesticides/PCB				Comp			Metals	
	ŭ	4 /	Metals					10	Cyanide		
	<u> </u>	7/2	Cyanide		_				Alkalinity/Ha	rdness	
		Samplers (Signatures)	Alkalinity/Hardness			Time	Oo	Samplers (Signatur	TCLP		
Time	89	Sign M	TCLP			Έ	1028	is ()	U VOA		
·	5,	ers (° □ VOA		_		7/	neldr //	□ ABN		_
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Year	9	S	☐ METALS			ay/Ye	00		Asbestos	120	
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onth	S.		Dioxin			Mon	6		Oil and Grea		
Ž	D.,		Oil and Grease		-				Oil and died	ase	_
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esig			Semi Volatiles (ABN)		Desig		1	Semi Volatil		
u	헏	<u> </u>	Pesticides/PCB			Comp.	. \	Pesticides/P	СВ	-
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	<u>l</u>		Cyanide				2/ /h	Cyanide		
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Designate:		1	Volatile Organics (VOA)			Designate:			Volatile Organ		_
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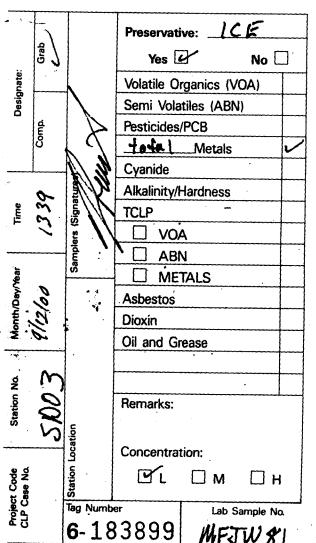
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6-183905

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Lab Sample No.

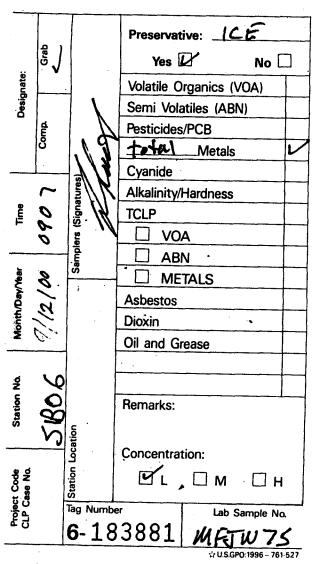


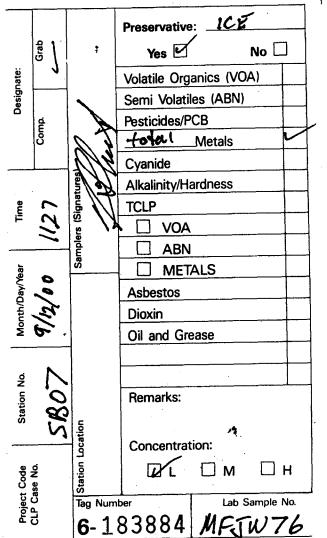




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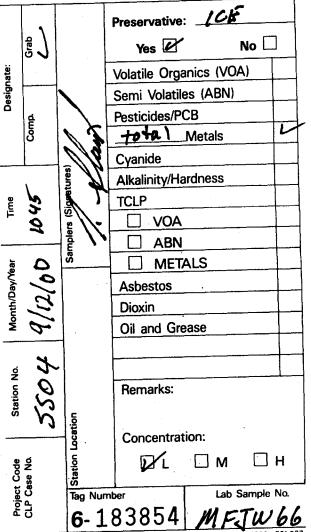


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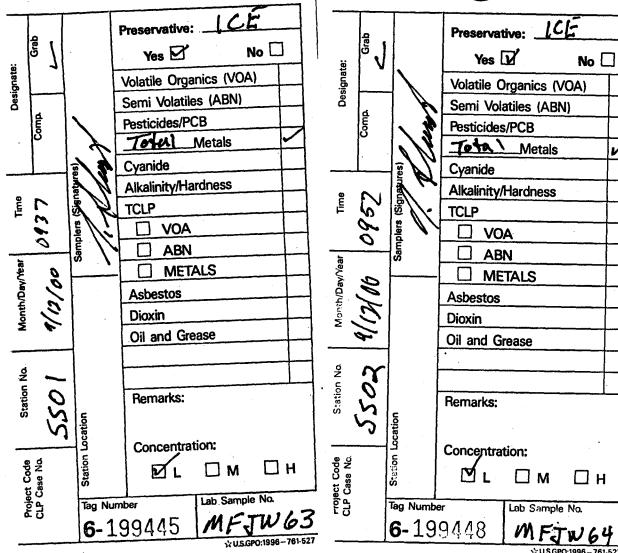


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APPENDIX D

E A

FedEx. USA Airbill 6214 1334 023] Sender's Copy
From Please print and press hard. Sender's FedEx	4a Express Package Service Packages up to 159 lbs. Delivery commitment may be later in some areas.
Date 9-12-00 Account Number 0722-0252-0	FedEx Priority Overnight Next business morning FedEx Standard Overnight Next business aftermoon Rest business morning FedEx First Overnight Rest business morning Gelivery to select locations
Sender's Terry Sligh Phone (501) 682-08:	FedEx 20ay* Second business day FedEx Express Saver* Third business day *FedEx Expresspoulutatar Rate not available Microsom charge: Charponed rate
Company ARK DEPT OF ENVIR QUALITY	4b Express Freight Service Packages over 150 Bus. Delivery commitment, may be later in some areas.
Address 8001 NATIONAL DR	FedEx 1Day Freight* FedEx 2Day Freight FedEx 3Day Freight Next business day * Call for Confirmation:
Dept/floor@ala@fio	5 Packaging *Declared value limit 800
City LITTLE ROCK State AR ZIP 72209	FedEx Envelope/Letter* FedEx Pak* Other Pkg. Inchade FedEx Box, FedEx Tob., and customer pkg.
Your Internal Billing Reference OPTIONAL First Meanurage on Processing Vision (Control of Control o	6 Special Handling Include FoldEx address in Section 3.
To Recipient's Deborah Inman Phone (918) 251-054	SATURDAY Delivery Available for Felix Priority Overright on Felix Zdey to select ZIP codes SUNDAY Delivery Available for Felix Priority Overright on Felix Zdey to select ZIP codes HOLD Weekckay at FedEx Location Not available for Felix Priority FedEx First Overright Verright and Felix Zdey overright and Felix Zdey overright and Felix Zdey overright and Felix Zdey
Company AATS	Does this shipment contain dangerous goods? One box must be checked. Yes Yes Dry Ice Dry Ce, 3, UN 1845 x le
Address 1700 West Albany, Suite C	Shipper's Declaration not required Dengerous Goods cannot be shipped in FedEx peckaging. Cargo Aircraft Only Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below.
To "NOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. 20° co	Sender Recipient Third Party Credit Card Cash/Check
Dept.ProorStatesPro	Crudit Card No. Date
Cay Broken Arrow State OK ZIP 74012	Total Pockages Total/Neight Total Declared Value*
Peel and Stick FedEx USA Airbill	\$.00
See back for application instructions.	10ur liability is limited to \$100 unless you declare a higher value. See back for details. 8 Release Signature sign to authorize delivery without abtoining aigmeture.
Questions? Call 1·800·Go·FedEx* (800-463-3339) Visit our Web site at www.fedex.com	
By using tws Airbill you agree to the service conditions on the back of this Airbill and in our current Service Guide, including terms that limit our liability.	By signing you authorize us to deliver this shipment without obtaining a signature and agree to indennify and hold us harmless from any resulting claims.
01456	75 055

	FecEx. USA Airbill & 8214 1334 0210		Sender's Copy
1	From Planes print and press hard.		Packages up to 150 lbs oranizant may be later in some area
	Date 9-12-00 Sender's FedEx Account Number 0722-0252-0	FedEx Priority Overnight Next Desirates noming FedEx Standard Overnight Next Desirates internion	FedEx First Overnight Earliest mad lealiness morning delivery to select lecitions
	Sender's Terry 5/1gh Phone (501) 682-0853	FedEx 20 ey* FedEx Express Saver* From Third business day *Fe	ndEx Envelope/Letter Rete not evailab Minimum charge: One-pound re
	COMPANY ARK DEPT OF ENVIR QUALITY	4b Express Freight Service	Packages over 150 lb. omnitment may be later in some area
	Address 8001 NATIONAL DR	FedEx 1Day Freight* FedEx 2Day Freight * Cell for Confirmation:	FedEx 3Day Freight Third business day
	Dept/RecrySulta/Room	5 Packaging	* Declared value limit SSC
	City LITTLE ROCK State AR ZIP 72209	FedEx Envelope/Letter* FedEx Pak*	Other Pkg. Inchese Fedex Box, Fedex Note, and customer pkg.
2	Your Internal Billing Reference OPTIONAL	6 Special Handling Include Feet	x address in Section 3.
3	To Recipients Pich Mannz Phone (314) 434-4570	SATURDAY Delivery Available for FreEx Priority Overnight on FreEx Zloy Noveled CEP codes Overnight on FreEx Zloy Noveled CEP codes Overnight on FreEx Zloy	HOLD Saturday
	company American Technical + Analytical Services	Dees this shipsment contain dangerous goods? One box must be checked. Yes Shipper's Declaration net required Dry les, t. U	N 1845 x k
	Address 875 Fee Fee Road To YALLY of Parks hearten, since Facility address. We cannot deliver to P.O. Drosse or P.O. 20P codes.	Oursperous Goods connot be shipped in FedEx packaging. 7 Payment Bill to:	Cargo Aircraft Only
	To "HOLD" at FedEx location, grint FedEx address. We cannot deliver to P.O. Dozes or P.O. ZIP codes.	Sender Recipient Third Party Credit	t Card Cash/Chec
	cay Maryland Heights state MO ZIP 63043	Folic Acc. No. Code Cord No. Code Total Packages Total Weight Total Declared Val	lue†
	Peel and Stick FedEx USA Airbill) / ,	.00
	See back for application instructions.	Our liability is limited to \$100 unless you declare a higher value. See back for de	FedEx ilea Only
	••	8 Release Signature Sign to authorize delivery without obtaining signature.	
	Questions? Call 1·800·Go·FedEx* (800-463-3339) Visit our Web site at www.fedex.com		
	By using this Airbill you agree to the service conditions on the back of this Airbill and in our current Seniors Guide, including serms that find our fability	By signing you authorize us to deliver this shipment without obtaining a signature	402

%EPA	United States E Contro	Environme act Labor	ental Pro atory Pro	tection Ag ogram				raffic Re ustody I CLP Analy	port Record sis)	1	85	07		· · · · · ·
1. Project Code Acco	unt Code	2. Reg	ion No.	Samplir		4. Date Shippe		edE)			latrix E <i>nter</i>			eservative nter in
Regional Information		<u> </u>	er (Nam	18)	DFQ light	9/12/00 Airbill Number 多ス14			210	<i>"</i>	<i>Colum</i> . Surface . Ground	e Water	1.	HCI HNO3
Non-Superfund Program			er Siehe	ature	not	5 Shin To					. Leacha . Field C . Soil/Se	ite IC Idiment	4. 5.	NaHSO4 H2SO4 Ice only
Site Name BPS FAC. City, State Hebra, AR	Spill ID	Lead SF PR XST FE	Р	CLE PA PA REM RI SI ESI	M Action FS	ATA 875 Fee Mary lai	e Fec nd H h Ma	Koad eights, innz	Mo 63043	8	. Waste (High o . Other of the column of the	Specify	*	Other (Specify in Column D) Not preserved
CLP Sample Numbers (from labels) A Matrix (from Box 6) Other: A B Cond Cond Cond Cond Cond Cond Cond Cond	Type: vati Comp./ (fro	er RA ve Yo 7) o	≰ ४	ysis High only ARO/ TOX	Trackir	F al Specific ng Number Numbers		G Station Location Identifier	Mo/ Year/ San	1	CLP I	l sponding norganic ple No.	J Sampler Initials	K Field QC Qualifier 8 = Bank 8 = Spike D = Duplicate R = Rinsate PE = Perform, Eval Not a QC Sample
FGM 63 5 L	6 6		XX		6-199	443 - 44		5501	9/12/00	9:37	MEI	W 63	73	
FGM64 5 L	G 5		XX		6-199	446-47	7	5502	9/12/00	9:52	MEJ	W 64	13	
FGM 65 5 L	G 5		XX		6-144	449-50		<u>5503</u>	9/12/00	1044	MFJ	W65	73	
FGM 66 5 L	G 5		XX		6-183	<u>852 - 53</u>		<u>5504</u>	9/12/00	10:45	MET	W 66	73	
F6M67 5 L	G 5		XX		6-183	855 - 56		<u> 50 S</u>	9/12/00	11807		W 67	13	
FGM68 5 L	6 5		X X		6-1838	958 - 59		<u>5506</u>	9/12/00	11:07		W 68	13	Dofssos
FGM69 5 L	6 5	$\bot \bot$	XX		6-183	861-67	2 5	5507	9/12/00	9:17	MET	W69	13	•
F6M70 5 L	6 5		XX		<u>6- 183</u>	864-6:	5	BOI	9/12/00	1143	MEJ	W 70	13	
	 	-				 		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			-	
Shipment for Case Complete? ((XN)					Laboratory QC	$(1)_{L}$	cky	plen Signatu			Chain of	Custody S	LSeal Numi	l ber(s)
Dalias is ad to this		hata / T		I Decai		CHAIN OF CUS			contract 1	Date	/Time	Received	hy: (Sia	neture)
Relinquished by: (Signatur	1/12/	Date / Ti	me 800	Heceiv	red by: (Signatu	(*	Relinque	hed by: <i>(Si</i>	gnature)	Date .		Heceived	by. (Э <i>і</i> д	riaiure)
Relinquished by: (Signatur	e) ///C	ate / Ti		Receiv	red by: (Signatu	ıre)	Relinquis	hed by: <i>(Si</i>	gnature)	Date	/Time	Received	by: (Sig	,
Relinquished by: (Signatur	e) C	Pate / Ti	me	Receiv (Signa	ved for Laborato	ry by:	Date	/ Time	Remarks Is	custody	seal intac	t? Y/N/no	ne	

Blue - Region Copy White - Lab Copy for Return to Region Pink - CLASS Copy Yellow - Lab Copy for Return to CLASS EPA Form 9110-2 (2/98) SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS *SEE REVERSE FOR PURPOSE CODE DEFINITIONS

%EP	United 8	States Envir Contract L				Org & Cha (Fo	anic T in of C or Organi	raffic Roustody	eport Reco	ord		* No.	507		
1. Project Code	Account Code	2.	Region I		pling Co.	4. Date Shippe	d Carrie		•		1 (Aatrix Enter		l (E	eservative inter in
Regional Information		Sa	mpler (A		٠. ١	Airbill Number					1 .	n Colun Surta	<i>nn A)</i> ce Water		olumn D) HCI
					Sligh	8214	133	34 0	210	2	2	. Groun	d Water	2.	HNO3
Non-Superfund Progr	am		mpler Si	1000-12	lux	5. Ship To A	TA:	5 2	0		34	Leach Field		4.	NaHSO4 H2SO4
Site Name BPS, In		3. I	Purpose SF		LEM Action ACTION	875 P	ee F	ee Ro	ack Us. 1	Ma	6 7		igh only)	6.	ice only Other (Specify in Column D)
City, State Ifelena, AR	Site Spill ID	X	PRP ST FED	≥ s	REM RD RI RA SI O&M ESI NPLD	Mary 1	ch l	Maun	63	7043	8	. Other	(Specify umn A)	N.	Not preserved
CLP Sample Numbers (from Box 6) (from labels) Amatrix (from Box 6)	B C Conc.: Sampl Low Type: Med Comp. High Grab	1 /from 1	RAS AI	nalysis High only ARO/	Regior Trackii or Tag	F nal Specific ng Number g Numbers		G Station Location Identifier		H Mo/Da Year/Ti Samp Collect	ay/ ime ole	CLP	l sponding Inorganic nple No.	Sampler Initials	K Field QC Qualifier B = Blank S = Spile D = Duplicate R = Rinaste PE = Perform. Eval = Not a QC Sample
F6M71 5	L 6	5	XX		6-183	867-68		SBOZ	9	Maloo 1	10:03	MFJ	W 71	73	
F6M72 5	46	5	_X;	<u>(</u>	6-1838	370-71		SB03	3 9	12/00 8	1:56	MET	W72	75	
F6-M73 5	L 6	5	X		6-1838	73-74		5B04	9/	100 IL	1528	MET	W 73	73	
F6M74 5	46	5	X	<u> </u>	6-1838	76-77		5 B O S	i a	112/00 10	7845	MET	W 74	73	
F6M73 5	16	5	X		6-1838	879-80		SBOG	$\frac{1}{2}$	1/2/00 4	107	MET	W 75	75	
FGM 76 5	46	5	X	<u> </u>	6-183	882-83	3 <	SB07	9/	12/00 1	1,27	MAT	W 76	73	
FG-M77 5	16	5	$ X\rangle$		6-183	885-86	, <	BOS	7	1/2/100 1	1127	MET	W 77	73	Dofsbor
F6M78 5	46	5	$ X ^2$	Κ	6-183	8 88-8	7	5B09	3/	12/00	7424	MFJ	W 78	73	
		1.					· .			· ·			·	·	
Shipment for Case Complete? (Y/N)	2 of <u>3</u>	Sampl	e(s) to b	Used f	or Laboratory QC	Additi	onal Sam	npler Signat	ures			Chain o	f Custody S	l Seal Numb	Der(s)
		<u>, </u>				CHAIN OF CUS		ECORD						•	
Relinquished by: (Sig	peture)	Date 1 <i>12/60</i>	/Time	Rec	eived by: (Signatu	(re)	Relinquis	shed by: <i>(S</i>	Signatur	9)	Date /	Time	Received	by: <i>(Sig</i> i	nature)
delinquished by: (Sig	nature)	Date	1/00-	Rec	eived by: (Signation	ire)	Relinqui	shed by: (S	Signatur	e)	Date	Time	Received	by: (Sigi	nature)
· .						:									
Relinquished by: <i>(Sig</i>	nature)	Date	/ Time	Rece (Sign	eived for Laborato nature)	ry by:	Date	/ Time	Rema	ırks İscı	ustody	seal intac	t? Y/N/no	16	

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		Λ	United State	es Enviro	nment	al Pro	tection :	Agency	Org	anic T	raffic Re	port		e No.	4		
ME		H	Co	ontract La	borato	ry Pro	gram	-	& Chai	r Organi	c CLP Analy	necora /sis)	12	85	01		
1. Project Cod	le	Accour	nt Code	2. F	legio	n No.	Samp	oling Co.	4. Date Shippe			_		Matrix			servative
		·			6			DFQ	9/12/00	<i></i>	eal	΄Χ		Enter n Colum	n A)		nter in Iumn D)
Regional Infor	mation			Sam	_	(Nam	-	-11	Airbill Number	1 - 2 -	oi a	2.0		. Surfac			HCI
V. 6 / -	10					211		Sligh	8214	133		210	—— i	l. Ground I. Leacha	ate	2. I	HNO3 NaHSO4
Non-Superfun	a Progr	am		San	ipier	Signa	ett ve	thus	5. Ship To A 875 F	TA	5 n	.0	4	Field C	C	4.1	H2SO4 ce only
Site Name		.,	··	3. P	urpos	se*	Early Ac	tion Long-Term LEM Action	875 F	e A	ee Ko	au	Ē	. Oil (Hi		6.	Other
BPS	7			Lead	SF		P/	A TS	Munlan	l Ha	ints /	M_{O}		'. Waste (High o	only)	1	(Specify in Column D)
City, State	ZI	Site S	pill ID		SF PRP		l IR	I BA	Tributy lotte		6	3043	8	i. Other ((Specify ımn A)		Not preserved
Helena,	AR		, <u> </u>		FED		Si E	I O&M SI NPLD	Munyland ATTN: RI	ch /	Mannz					<u> </u>	·
CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	Low	Comp. Grab E	reser- vative (from 3ox 7)			ysis High only ARO/ TOX	Tracki	F nal Specific ng Number ng Numbers		G Station Location Identifier	M Ye S	H o/Day/ ar/Time ample ollection	CLP	I sponding norganic ple No.	Sampler Initials	K Field QC Qualifier B = Blank S = Spike D = Duplicate R = Prinsate PE = Pedom. Evel = Not a QC Sample
F6M79	5	L	6	3	X	X	JUA	6-183	891-92		SD01	Pliale	011:41	MFJ	W79	75	
GM 80	3	7		3	X	X			89495		5002		13:25	MET		13	
FGM 81	5	7	6.	5	X	X		6 -183	897-99	8	5003	ANNIX		MAT	N81	13	
F6M 82	5	7	6	3	X	X		6-183	1900 -0		SD04			MFJI	N 82	73	
F6M 83	· S	L	G.	5	X	X		6-183	903-0	4 -	500S	AIDIN	14:17	MEJU	V 83	T3	
F6M 84	5	L	6	5	X	X		6-183	906-0	7	BD 06	alizioc	14:17	MFJU	U84	75	Dotsnos
FGM85	5	7	6	5	X	X		6-183	1909-10	5 :	5007	9/12/0	0 14:53	MFIN	1 85	75	:
					1												
Shipment for 6 Complete?	ase N)	1	age of <u>3</u>	Sample	e(s) to	bel	Jsed f	or Laboratory QC	<u>Ue</u>	cky	nder Signati	#		Chain of	Custody	Seal Numl	per(s)
		11					10.		CHAIN OF CUS			()		/ Time	Danaina	l hu (Cia	notion)
Relinquished	y: (Sig	rjavare) u V	7	Date /	1		}	eived by: (Signat	ure) {	Helindhi	shed by: <i>(S</i>	ignature)	Date	/ Time	Heceived	iby: <i>(Sigi</i>	iaiure)
Relinquished to	by: (Sig	nature)		Date			_	eived by: (Signat	ure)	Relinqui	shed by: (S	ignature)	Date	/ Time	Receive	d by: (Sig	nature)
Relinquished b	v: /Sig	nature)		Date /	'Time		Reci	eived for Laborato	ory by:	Dat	e / Time	Remarks	Is custody	seal intac	t? Y/N/no	ne	
iquiorioù û	,, (- ,9					-	(Sigi	nature)									•

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SEPA United States Cont	Environmental Protection Agency ract Laboratory Program	Inorganic Traffic Report & Chain of Custody Record (For Inorganic CLP Analysis)	Case No. 28507	
1. Project Code Account Code		Date Shipped Carrier 4/12/00 Fed EX	6 Matrix (Enter	7. Preservative
Regional Information		175111 Number 6214 1334 0231	in Column A) 1. Surface Water 2. Ground Water	in Column D)
Non-Superfund Program	Sampler Signature	5. Ship To AA73	3. Leachate: 100	3. NaOH 5 4. H2SO4 5. K2CR2O7 8
Site Name BPS, Inc.	Leed CLEM Action FS FS REM RD	1700 West Albany Suite C Broken Armw, OK 74	7. Waste (High only) only) 8. Other (specify	6. Ice only 2 7. Other (specify in Column D) N. Not preserved
City, State Site Spill ID Helena , AR	ST Si O&M FED ESI NPLD	ATTN: Deborah Inman	in Column A)	
CLP A Matrix Numbers (from Box 6) labels) Other Box 6	D E - RAS Analysis Preservative (from Box 7) Other: Other Preservative only only only only only only only only	Regional Specific Tracking Number or Tag Numbers	Mo/Day/ Corresponding Year/Time CLP Organic Sample Sample No. Collection	Sample Field QC Initials B = Blank 'NS = Spike D = Duplicate PE = Perform, Eval
MFJW63 5 L G	6 X 6-		9/12/00 9:37 FGW 63	T3 100
MFTW 64 5 L 6 MFTW 65-5 L 6	6 X 6 -6 -		9/12/00 9:52 FGM 64 9/12/00 10:14 FFM 65	73 15 15 15 15 15 15 15 1
METW 66 5 L G	6 X 6-		2112/00 10:45 FGM 66	75
MFJW67 5 L G	6 X 6-		21/21/00/11:07 FGW 67	<i>TS</i>
MFJW68 5 L G	6 X 6-	183860 5506	1/12/10 U:07 FGM 68	TS Dofssos
MFJW69 5 L 6	التترجيب والتناب والتناز والمناز والمناز والمناز والمناز والمناز والمناز والمناز والمناز والمناز والمناز والمناز	183863 5507	4/1400 9:17 FGM 69	73
MFJW70 5 2 6	6 X - 6-	183866 5801	1/12/009:43 F6M70	アメーを作事
		A LANGUAGE TO A MARKET	数 5	基本的
			an .	
Complete? (VIN)	ample(s) to be Used for Laboratory QC MF_TW69	Additional Sampler Signatures	Chain of Custody S	eal Number(s)
(1991) [1] [1] [1] [1]		HAIN OF CUSTODY RECORD	N S S	ske gettiller i e
	Date / Time Received by: (Signatur	e) Relinquished by: (Signature)	Date / Time Received	by: (Signature)
Aelinquished by: (Signature)	Date / Time Received by: (Signatur	e) Relinquished by: (Signature)	Date / Time Received	by: (Signature)
Relinquished by: (Signature)	Date / Time Received for Laboraton (Signature)		Is custody seal intact? Y/N/nor	

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Pink - CLASS Copy
Yellow - Lab Copy for Return to CLASS

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
SEE REVERSE FOR PURPOSE CODE DEFINITIONS
271825

%EF	2/4	Unit	ted States Contr	Environ ract Lab	mental oratory	Pro Pro	tection gram	Agen	су			& Cha (Fo	ganic Ti in of Cu r Inorganic	raffi usto : CLP	c Red dy F	eport Record /sis)	.	Case N		507	7	
1. Project Code	Acc	count C	ode	1	gion		A	pling Di			9/1	2/00		ed	E	ζ			nter	n <i>A</i>)	(En	
Regional Informat	ion			Samp	oler (A		•	1	i			Number		ו כיכ	٠, ٠	422			<i>Colum.</i> Surface	•	1. H	Column D)
Non-Superfund P	rogram			Sami	oler S	en		الرك	19		E Ch	8214		334		023	-	2.0	around beachat	Water	2. H	NO3 aOH
Non-Superiula P	rogram				24	44	L	his	<u> </u>		J. F.	Ä7	3				1	4. F	Teld QC	liment	4. H	2SO ₄ 2CR ₂ O ₇
Site Name BPS, I	nc.			Lead	pose F	, . - -	TP/	LEM	Act	rg-Term rion FS RD	17	700 K	S West, en Av	ALL	any	ı, Suir OK	le C	6. C 7. V	Dil (High Vaste (h only)	n only) High	6. lo 7. O ir	e only ther <i>(specify</i> <i>Column D)</i>
City, State Helena, Al	Sit	te Spill	ID	⊠s	RP T ED		R S S E		E	RA O&M NPLE	AT	TN: Dek	orah I	Inw	an	7401	ス		Other (s n Colun		N. N	ot preserved
CLP Sample Numbers (from labels)	A Matrix (from Box 6)	B Conc. Low Med High	C Sample Type: Comp./ Grab	Preser vative (from Box 7 Other:	4	Total Metals	11	ow only	Conduct.		Tra	F gional Sp cking Nu Tag Num	mber		Lo	G tation cation entifier	Mo Year Sa	H /Day/ r/Time mple ection	CLP	I sponding Organic nple No.	J Sampler Initials	K Field QC Qualifier B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval= Not a QC Sample
MFJW71	5	L	G	6		X				-	-18	386	9		SB	02	7-12-0	0 10103	FG	M71	73	
MFJW72	ک	L	6	6		X				6.	-18	387	<u> </u>		5B	03		8:56			<i>TS</i>	
MEJW73	5	1	6	6		X		Ц		6.	-18:	387	5	\perp	<u>513</u>		9-12-00	10/18	F6	<u>W73</u>	73	
MFJW74	5	7	G	6		XI.			_	6.		<u> 387</u>			_	05		10:55		M74	13	
MFJW75	_5	7	E	6		XI.		\coprod	_	6		388			5 B	06	9-12-0			M75	73	
MFJW76	5	7	6	6		XJ.		\sqcup		6		388				307	7	1/127		M76	73	
MFJW 77	_5	1	G	6		X	$oldsymbol{ol}}}}}}}}}}}}}}}}}}$			6	<u>- 18</u>	388	57							M77	73	Dof 5807
MFJW78	_5_	L	6	6		X				6	-18	38	90		<u>SB</u>	09	9-12-00	194:24	FG	M78	13	and the second second second
					┼-┼	+		$\vdash \vdash$	-	 							<u> </u>		 		 	
Shipment for Cas Complete? (YN)		Page 2 of _		ample(s) to t	be l	Jsed	for La	bora	tory QC	;	Addi	tional Samp	. D.	ignatu		<u>l</u>	C	hain of	Custody \$	l Seal Num	ber(s)
			,									OF CU	STODY	ECOR	D							
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SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS SEE REVERSE FOR PURPOSE CODE DEFINITIONS

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6 HOUSTON BRANCH 10625 FALLSTONE RD. HOUSTON, TEXAS 77099

MEMORANDUM

Date:

October 19, 2000

Subject:

Contract Laboratory Program Data Review

From:

Marvelyn Humphrey, Alternate (SAT RPO, 6MD-HC

To:

P. Ofosu, 6SF-RA

Site :	BPS INC.	
Case#:	28507	FFF
SDG# :	FGM63	

The EPA Region 6 Houston Branch ESAT data review team has completed a review of the submitted Contract Laboratory Program (CLP) data package for the referenced site. The samples analyzed and reviewed are detailed in the attached Regional data review report.

The data package is acceptable for regional use. Problems, if any, are listed in the report narrative.

If you have any questions regarding the data review report, please call me at (281) 983-2140.

Attachments

cc: R. Flores, Region 6 CLP/TPO

M. El-Feky, Region 6 Data Coordinator

Files (2)

LOCKHEED MARTIN SERVICES GROUP ESAT REGION VI 10101 SOUTHWEST FREEWAY, SUITE 500 HOUSTON, TX 77074

MEMORANDUM

DATE:

October 18, 2000

TO:

Melvin Ritter/Marvelyn Humphrey, ESAT RPO/Alternate

RPO, Region VI

FROM:

REF:

Tom C.H. Chiang, ESAT Team Manager, Region VI Tom CHIAM

SUBJECT:

CLP Data Review

TDF # 6-1013A

ESAT # 0-2267

ESAT Contract No. 68-D6-0005

Attached is the data review summary for Case # 28507

SDG # FGM63

Site BPS Inc.

COMMENTS:

- I. CONTRACTUAL ASSESSMENT OF THE DATA PACKAGE
 - A. The hardcopy review and the CCS audit found the contractually noncompliant item below.

The laboratory failed to dilute and reanalyze Pest/PCB samples FG-M63 and FG-M64 with β -BHC, δ -BHC, endosulfan I, DDE, dieldrin, and/or endrin peak responses exceeding the calibration upper limits on one column (OLM04.2, p. D-66/PEST, sec. 11.3.5). This omission did not affect the result usability.

B. The hardcopy review found the contractually noncompliant item below that CCS is not expected to detect.

The data package arrived 4 working days late for the contractual 14-day turnaround requirement.

II. TECHNICAL USABILITY ASSESSMENT OF THE DATA PACKAGE

The total number of results reviewed was 1,860 for this data package. Some results were qualified because of technical problems. The significant technical problems are summarized below.

- A. Coeluting toxaphene peaks interfered with the quantitation of DDD for samples FG-M67 and FG-M80.
- B. The field duplicate samples FG-M67 and FG-M68 (in SDG FGM68) had inconsistent toxaphene concentrations.
- C. Aldrin, dieldrin, and DDT had outlying MS recoveries and %RPD's.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

HOUSTON BRANCH 10625 FALLSTONE ROAD HOUSTON, TEXAS 77099

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO	28507	SIT	E	BPS In	nc.
LABORATORY_	ATAS	NO.	OF SAMPLES	20	
CONTRACT#	68-W-00-066	MAT	RIX	Soil	
SDG#	FGM63	REV	IEWER (IF NOT	ESD)E	ESAT
SOW#	OLM04.2	REV	IEWER'S NAME_	Ying-Ping	Hsieh
ACCT#	150102DJN01	COM	PLETION DATE_	October 1	18, 2000
SF#	50102DDY				
SAMPLE NO.	FG-M63	FG-M67	FG-M74	FG-M78	FG-M82
	FG-M64	FG-M71	<u>FG-M75</u>	FG-M79	FG-M83
	FG-M65	FG-M72	FG-M76	FG-M80	FG-M84
	FG-M66	FG-M73	FG-M77	FG-M81	FG-M85

DATA ASSESSMENT SUMMARY

		BNA	PEST
1.	HOLDING TIMES	_ 0_	_ 0_
2.	GC/MS TUNE/INSTR. PERFORM.		O
3.	CALIBRATIONS	O	O
4.	BLANKS	_ 0	M
5.	SMC/SURROGATES	0	0
6.	MATRIX SPIKE/DUPLICATE	0	M
7.	OTHER OC	0	M
8.	INTERNAL STANDARDS (IS)	0	N/A
9.	COMPOUND ID/QUANTITATION	0	M
10.	PERFORMANCE/COMPLETENESS	0	0
11.	OVERALL ASSESSMENT	0	M

O = Data had no problems.

M = Data qualified due to major or minor problems.

Z = Data unacceptable.

NA = Not applicable.

ACTION ITEMS: The data package arrived 4 working days late for the contractual 14-day turnaround requirement.

AREA OF CONCERN: The laboratory failed to dilute and reanalyze two Pest/PCB samples with target analyte peak responses exceeding the contractual upper limits on one column. Coeluting toxaphene peaks interfered with the quantitation of DDD for samples FG-M67 and FG-M80. The field duplicate samples FG-M67 and FG-M68 (in SDG FGM68) have inconsistent toxaphene concentrations. Aldrin, dieldrin, and DDT had outlying MS recoveries and %RPD's. The two-column quantitation results were inconsistent for several pesticides in 10 samples.

NOTABLE PERFORMANCE:

COMMENTS/CLARIFICATIONS REGION VI CLP QA REVIEW

CASE	28507	SDG	FGM63	_ :	SITE	BPS	Inc.	_ LAB	1	ATAS	
	following eporting t				sample	qua	lifiers	used	by	Region	6

No.	<u>Acceptable</u>	Provisional	<u>Unacceptable</u>
BNA	20		
Pest/PCB	4	16	

COMMENTS: This SDG consisted of 20 soil samples for RAS BNA and Pest/PCB analyses by CLP SOW OLM04.2. According to the OTR/COC Records, sample FGM64 was the QC sample, and samples FGM67/FGM68 (in SDG FGM68), FGM76/FGM77, and FGM83/FGM84 were field duplicate pairs. The CRQL's required %moisture correction for the soil samples and additional dilution correction for the diluted samples. The corrected CRQL's were reported by the laboratory and are referred to as sample quantitation limits (SQL's) in this report. The BNA samples were all analyzed at the low level. The data package contained the following contractually non-compliant items.

- The laboratory failed to dilute and reanalyze two Pest/PCB samples with target analyte peak responses exceeding the contractual upper limits on one column.
- The data package arrived 4 working days late for the contractual 14-day turnaround requirement.

BNA The only target analyte reported at a concentration above the SQL was hexachlorobenzene in sample FG-M64. Sample FG-M66 had IS areas exceeding the QC limits. The sample was reanalyzed and had the same problem, demonstrating matrix effects. The original data were recommended for use.

<code>Pest/PCB</code> Many pesticides and/or toxaphene were reported at concentrations above the SQL's in 16 samples. Samples FG-M63, FG-M64, FG-M65, FG-M67, FG-M72, FG-M73, FG-M75, FG-M78, and FG-M79 contain high concentrations of DDE, DDT, and/or toxaphene. The high DDT and/or DDE concentrations required the analyst to reanalyze samples FG-M67, FG-M73, and FG-M78 at a dilution (up to 20%).

Some results were qualified for 16 Pest/PCB samples because of problems with laboratory contamination, MS/MSD performance, inconsistent field duplicate results, and compound quantitation. The technical usability of all reported sample results is indicated by ESAT's final data qualifiers in the Data Summary Table. An Evidence Audit was conducted for the Complete Sample Delivery Group File (CSF), and the audit results were reported on the Evidence Inventory Checklist.

ORGANIC QA REVIEW CONTINUATION PAGE

CASE 28507 SDG FGM63 SITE BPS Inc. LAB ATAS

heptachlor, endosulfan II, DDD, methoxychlor, and endrin ketone in sample FG-M71;

heptachlor in samples FG-M72, FG-M73, and FG-M79;

heptachlor, dieldrin, and endosulfan II in sample FG-M74;

 δ -BHC in samples FG-M75 and FG-M78;

 $\delta\textsc{-BHC},$ heptachlor, dieldrin, endosulfan II, DDD, DDT, and $\gamma\textsc{-chlordane}$ in sample FG-M81; and

 δ -BHC, heptachlor, DDT, and toxaphene in sample FG-M85.

Results below the SQL's for the following analytes are biased high because of laboratory contamination:

toxaphene in sample FG-M65;

 $\delta\textsc{-BHC},$ dieldrin, endrin ketone, and $\gamma\textsc{-chlordane}$ in sample FG-M66;

 $\delta\text{-BHC}$, dieldrin, DDT, and $\gamma\text{-chlordane}$ in sample FG-M71;

 δ -BHC in samples FG-M72, FG-M73, and FG-M79; and

DDD and DDT in sample FG-M74.

The DDT result above the SQL is biased high for sample FG-M84 because of laboratory contamination.

The reviewer did not assign a bias flag to the toxaphene result in sample FG-M67 because of a contradictory bias resulting from the field duplicate evaluation (see sec. 7).

- 5. System Monitoring Compounds (SMC's)/Surrogates: Acceptable. The surrogate recoveries were within the QC limits with the following exceptions. The TCX and/or DCB recoveries exceeded the QC limits on one column or both columns for samples FG-M64, FG-M64MS, and FG-M64MSD. The reviewer verified that the high recoveries were caused by coeluting matrix interferences, so no results were qualified.
- 6. Matrix Spike/Matrix Spike Duplicate (MS/MSD): Provisional. The MS/MSD results met the QC criteria for precision and %recovery with the following exceptions.

ORGANIC QA REVIEW CONTINUATION PAGE

CASE 28507 SDG FGM63 SITE BPS Inc. LAB ATAS

NOTE: THE FOLLOWING REVIEW NARRATIVE ADDRESSES BOTH CONTRACTUAL ISSUES (BASED ON THE STATEMENT OF WORK) AND TECHNICAL ISSUES (BASED ON THE NATIONAL FUNCTIONAL GUIDELINES). THE ASSESSMENT MADE FOR EACH QC PARAMETER IS SOLELY BASED ON THE TECHNICAL DATA USABILITY, WHICH MAY NOT NECESSARILY BE AFFECTED BY CONTRACTUAL PROBLEMS. THE ASSESSMENTS ARE DEFINED BELOW.

Acceptable = No results were qualified for any problem associated with this QC parameter.

Provisional = Some results were qualified because of problems

associated with this QC parameter.

Unusable = All results are unusable because of major problems associated with this QC parameter.

- 1. Holding Times: Acceptable. All samples met contractual holding time criteria. No technical holding time criteria exist for soil samples.
- 2. Tuning/Performance: Acceptable. DFTPP analyses met GC/MS tuning criteria. The Pest/PCB analyses met instrument performance guidelines.
- 3. Calibrations: Acceptable. All calibrations met contractual criteria. Several BNA target analytes failed technical %RSD and/or %D calibration criteria, but data qualification was unnecessary because these compounds were not reported at concentrations above the SQL's in the associated samples.
- 4. Blanks: Provisional. The method and instrument blanks met contractual requirements.

BNA Di-n-butylphthalate and di-n-octylphthalate were detected at concentrations below the CRQL's in the method blanks. All laboratory "B"-flagged results below the SQL's for these two compounds should be considered as undetected (U).

Pest/PCB Heptachlor, δ -BHC, dieldrin, endosulfan II, DDD, endosulfan sulfate, DDT, α -chlordane, γ -chlordane and/or toxaphene were detected at concentrations below the CRQL's in the method blanks. Results below the SQL's for the following analytes should be considered as undetected (U) because of laboratory contamination:

 δ -BHC and heptachlor in samples FG-M65, FG-M67, FG-M76, FG-M77, FG-M80, FG-M82, FG-M83, and FG-M84;

heptachlor, endosulfan II, and methoxychlor in sample FG-M66;

ORGANIC QA REVIEW CONTINUATION PAGE

CASE 28507 SDG FGM63 SITE BPS Inc. LAB ATAS

BNA The MS recovery for 2,4-dinitrotoluene exceeded the QC limit, but data qualification was unnecessary because this compound was not detected in the unspiked sample.

Pest/PCB Heptachlor, aldrin, dieldrin, and DDT had outlying MS recoveries and/or %RPD's. The reviewer qualified the results above the SQL's as estimated for aldrin, dieldrin, and DDT in the unspiked sample FG-M64 because of the outlying MS/MSD performance.

7. Other QC:

Field duplicates: Provisional. The results for the field duplicates were consistent with one exception. The toxaphene concentrations differed by a factor of 4 for field duplicate samples FG-M67 and FG-M68 (SDG FGM68). The reviewer qualified the toxaphene concentration for sample FG-M67 as estimated, but did not assign a bias flag because of a contradictory bias resulting from the laboratory contamination (see sec. 4). The qualification for the toxaphene concentration in sample FG-M68 (estimated and biased high) is addressed in the review report for SDG FGM68.

- 8. Internal Standards (IS): Acceptable. Internal standard performance met the QC criteria for the BNA sample and QC analyses with the following exceptions. BNA sample FG-M66 had IS areas exceeding the QC limits. The sample was reanalyzed and had the same problem, demonstrating matrix effects. Data qualification was unnecessary per Region 6 guidelines because no compounds were reported at concentrations above the SQL's in this sample. Sample FG-M64MS also had a high IS1 area, but data qualification was unnecessary because the IS1 area only marginally exceeded the QC limit.
- 9. Compound Identity/Quantitation: Provisional.

BNA The only target analyte reported at a concentration above the SQL was hexachlorobenzene in sample FG-M64. The detected analytes met compound identification criteria.

Pest/PCB DDE, DDD, DDT, and/or toxaphene were reported at concentrations above the SQL's in 16 samples. Besides these four analytes, several other pesticides were also reported at concentrations above the SQL's in samples FG-M63 and FG-M64. Samples FG-M63, FG-M64, FG-M65, FG-M67, FG-M72, FG-M73, FG-M75, FG-M78, and FG-M79 contain high concentrations of DDE, DDT, and/or toxaphene. The high DDT and/or DDE concentrations required the analyst to reanalyze samples FG-M67, FG-M73, and

ORGANIC QA REVIEW CONTINUATION PAGE

CASE 28507 SDG FGM63 SITE BPS Inc. LAB ATAS

FG-M78 at a dilution (up to 20X). The retention times were outside the windows on one column for heptachlor epoxide in sample FG-M71 and $\gamma\text{-BHC}$ in sample FG-M64MSD. However, the concentration for heptachlor epoxide was less than 10 percent of the SQL in sample FG-M71, and the reviewer raised the low concentration to the SQL and "U"-flagged it. The reviewer verified that the retention time outside the window for $\gamma\text{-BHC}$ in sample FG-M64MSD on column RTX-CLPII was due to matrix interferences. Therefore, no data qualification was necessary. The other detected analytes met compound identification criteria. GC/MS confirmation is not required for the reported Pest/PCB results except DDT in sample FG-M78. The BNA TIC data for sample FG-M78 confirmed the DDT identification.

Coeluting toxaphene peaks interfered with the identification of many pesticides on one or both columns. The analyst deleted those pesticide results which were false positives due to interfering toxaphene peaks. The reviewer qualified the DDD results above the SQL's as estimated and biased high in samples FG-M67 and FG-M80 because of the coeluting toxaphene interferences.

The laboratory reported extremely low concentrations (less than 10 percent of the SQL's) for many pesticides. The reviewer raised these low concentrations to the SQL's and "U"-flagged them following the Region 6 guidelines. All laboratory "P"-flagged results that were above SQL's were qualified as estimated because two-column quantitation results differed by more than 25 percent.

- 10. Performance/Completeness: Acceptable. The laboratory submitted the revised Form 1 (page 796) for Pest/PCB sample FG-M64 in response to the CCS report. The resubmission was reviewed and the resubmitted page was used to replace the original one in the CSF package. The data package was complete but contained some omissions. The laboratory was contacted for the needed resubmission (see FAX Record Log).
- 11. Overall Assessment: Data are acceptable for all BNA and four Pest/PCB samples.

Pest/PCB Some results were qualified for the following samples because of problems with laboratory contamination, MS/MSD performance, inconsistent field duplicate results, and compound quantitation:

FG-M63, FG-M64, FG-M65, FG-M66, FG-M67, FG-M71, FG-M72, FG-M73, FG-M74, FG-M76, FG-M78, FG-M79, FG-M80, FG-M82, FG-M83, and FG-M84.

ORGANIC DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the ESAT-Region 6 qualifiers assigned to results in the Data Summary Table.

- Wot detected at reported quantitation limit.
- N Identification is tentative.
- J Estimated value.
- L Reported concentration is below the CRQL.
- M Reported concentration should be used as a raised quantitation limit because of interferences and/or laboratory contamination.
- R Unusable.
- A High biased. Actual concentration may be lower than the concentration reported.
- V Low biased. Actual concentration may be higher than the concentration reported.
- F+ A false positive exists.
- F- A false negative exists.
- B This result may be high biased because of laboratory/field contamination. The reported concentration is above 5X or 10X the concentration reported in the method/field blank.
- UJ Estimated quantitation limit.
- Identification is questionable because of absence of other commonly coexisting pesticides.
- * Result not recommended for use because of associated QA/QC performance inferior to that from other analysis.

Case No.:

28507

SDG: FGM63

Reviewer: Y. Hsieh

Laboratory:

ATAS

Matrix: Soil

Units: ug/Kg

SEMIVOLATILE	T FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER :	FG-M63	FG-M64	FG-M65	FG-M66	FG-M66RE	FG-M67	FG-M71
Benzaldehyde	380 U	180 LJ	380 U	420 U	420 U*	390 U	380 U
Phenol	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
bis-(2-Chloroethyl) ether	380 U	420 U	380 U	420 U	420 U*	390 U	380 U
2-Chlorophenol	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
2-Methylphenol	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
2,2'-oxybis(1-Chloropropane)	380 U	420 U	380 U	420 U	420 U*	390 U	380 U
Acetophenone	380 U	140 LJ	380 U	420 U	420 U*	390 U	380 U
4-Methylphenol	380 U	420 U	380 U	420 U	420 U*	390 U	380 U
N-Nitroso-di-n-propylamine	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
Hexachloroethane	380 U	420 U	380 U	420 U	420 U*	390 U	380 U
Nitrobenzene	380 U	420 U	380 U	420 U	420 U •	390 U	380 U
Isophorone 2-Nitrophenol	380 U	420 U	380 U	420 U 420 U	420 U*	390 U	380 U
2,4-Dimethylphenol	THE RESERVE OF THE PERSON NAMED IN	420 U	380 U	420 U	420 U *	390 U	380 U
bis(2-Chloroethoxy)methane	380 U	420 U	380 U	420 U	420 U*	390 U	380 U
2,4-Dichlorophenol	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
Naphthalene	380 U	51 LJ	380 U	420 U	420 U *	390 U	380 U
4-Chloroaniline	380 U	420 U	380 U	420 U	420 U*	390 U	380 U
Hexachlorobutadiene	380 U	420 U	380 U	420 U	420 U °	390 U	380 U
Caprolactam	380 U	50 LJ	380 U	420 U	420 U *	22 LJ	380 U
4-Chloro-3-methylphenol	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
2-Methylnaphthalene	380 U	110 LJ	380 U	420 U	420 U *	390 U	62 LJ
Hexachlorocyclopentadiene	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
2,4,6-Trichlorophenol	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
2,4,5-Trichlorophenol	970 U	1100 U	950 U	1100 U	1100 U*	980 U	970 U
1,1'-Biphenyl 2-Chloronaphthalene	380 U	420 U 420 U	380 U	420 U 420 U	420 U *	390 U	380 U
2-Nitroaniline	970 U	1100 U	950 U	1100 U	1100 U*	A RATE OF THE PARTY OF THE PART	CONTRACTOR CONTRACTOR CONTRACTOR
Dimethylphthalate	380 U	420 U	380 U	420 U	420 U *	980 U	970 U
2.6-Dinitrotoluene	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
Acenaphthylene	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
3-Nitroaniline	970 U	1100 U	950 U	1100 U	1100 U*	980 U	970 U
Acenaphthene	380 U	420 U	380 U	420 U	420 U*	390 U	380 U
2,4-Dinitrophenol	970 U	1100 U	950 U	1100 U	1100 U*	980 U	970 U
4-Nitrophenol	970 U	1100 U	950 U	1100 U	1100 U ·	980 U	970 U
Dibenzofuran	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
2.4-Dinitrotoluene	-380 U	420 U	380 U	420 U	420 U*	390 U	380 U
Diethylphthalate Fluorene	24 LJ	35 LJ	380 U	420 U	420 U *	22 LJ	380 U
The second section of the second section of the second section is a second section of the second section of the second section is a second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the section of the second section of the sectio	380 U	1720	380 U	420 U	420 U	390 U	380 U
4-Chlorophenyl-phenyl ether 4-Nitroaniline	380 U	420 U	380 U 950 U	420 U	420 U*	390 U 980 U	380 U
4,6-Dinitro-2-methylphenol	970 U	1100 U	950 U	1100 U	1100 U *	980 U	970 U
N-Nitrosodiphenylamine	380 U	420 U	380 U	420 U	420 U*	390 U	380 U
4-Bromophenyl-phenylether	380 U	420 U	380 U	420 U	420 U *	390 U	380 U
Hexachlorobenzene	380 U	2300	380 U	420 U	420 U •	390 U	380 U
Atrazine	380 U	420 U	380 U	420 U	420 U*	390 U	380 U
Pentachlorophenol	970 U	1100 U	950 U	1100 U	1100 U*	980 U	970 U
Phenanthrene	380 U	28 LJ	380 U	420 U	420 U *	390 U	380 U
Anthracene	380 U	420 U	380 U	420 U	420 U*	390 U	380 U
Carbazole	380 U	420 U	380 U	420 U	420 U*	390 U	380 U

For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with Note: ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

Case No.:

28507

SDG:

FGM63

Reviewer: Y. Hsieh

Laboratory:

ATAS

Matrix:

Soil

Units:

ug/Kg

SEMIVOLATILE EPA SAMPLE NUMBER :	FG-M63	FLAG	FG-M64	FLAG	FG-M65	FLAG	FG-M66	FLAG	FG-M66RE	FLAG	FG-M67	FLAG	FG-M71	FLAG
Di-n-butylphthalate	27	LJ	34	LJ &	22	LJ	420	U	420	U*	29	LJ	23	LJ
Fluoranthene	20	LJ	420	U	380	U	420	U	420		390	U	380	U
Pyrene	20	LJ	420		-21	LJ	420		420	U·	390	U	380	U
Butylbenzylphthalate	380	U	420	U	380	U	420	U	420	U.	390	U	380	U
3,3'-Dichlorobenzidine Benzo(a)anthracene	380	MAN THE RESERVE TO TH	420 35	U LJ	380 380	THE SHAPE	420 420		420 420		390 390		380 380	Mary Control
Chrysene	20	i.	75	T.	380	ALC: VALUE OF	420	MARKETON	MATERIA DE LA CONTRACTOR DE LA CONTRACTO	U.	390	U	380	
ois(2-Ethylhexyl)phthalate	91	LJ	420	1000	380		420			u.	390	COLUMN TWO	380	
Di-n-octylphthalate Benzo(b)fluoranthene	380		420 420		380	U LJ	420 420		420 420		390		380	-
Benzo(k)fluoranthene	THE REPORT OF THE PARTY OF	NAME AND ADDRESS OF THE	NAME AND ADDRESS OF	SECTION OF THE PARTY.	23	name of the last	DESCRIPTION OF THE PARTY OF	NAME OF THE PERSON OF	CONTRACTOR OF THE PARTY OF THE	u.	BETTOWN THE PARTY OF	-	380	MATERIAL PROPERTY.
Benzo(a)pyrene	380	NAME OF TAXABLE PARTY.	33 420	U	380	U U	420 420		420		390 390	-	380	U
ndeno(1,2,3-cd)pyrene	380	Ü	420	DOMESTIC STREET, THE PARTY NAMED IN	380	U	A STATE OF THE PARTY OF THE PAR	U	420	Miles of the last	390	DOLLS WATER	380	TO STREET, STR
Dibenzo(a,h)anthracene	380	U	37	LJ	380	U	420		420		390	U	32	LJ
Benzo(g,h,i)perylene	380	U	420	U	380	U	420	U	420	U.	390	U	380	U
Sample wt (g) :	30		30		30		30)	30		30		30	
%Moisture :	14		22		13		21		21		15		14	
Dilution Factor ;	1		1		1		1		1		1		1	
Level:	Low		Low		Low		Low	,	Low		Low		Low	
Number of TIC's :	26		30		14		13	3	14		14		20	

Case No.:

28507

SDG:

FGM63

Reviewer: Y. Hsieh

Laboratory:

ATAS

Matrix:

Soil

Units: ug/Kg

SEMIVOLATILE EPA SAMPLE NUMBER :	FLAG FG-M72	FLAG FG-M73	FLAG FG-M74	FLAG FG-M75	FLAG FG-M76	FLAG FG-M77	FLAG FG-M78
				AND AND THE ENGINEERING			STORY CHECKEN AND AND AND AND AND AND AND AND AND AN
Benzaldehyde	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Phenol	360 U	360 U	400 U	350 U	380 U	380 U	350 U
bis-(2-Chloroethyl) ether	360 U	360 U	400 U	350 U	380 U	380 U	350 U
2-Chlorophenol	360 U	360 U	400 U	350 U	380 U	380 U	350 U
2-Methylphenol	360 U	360 U	400 U	350 U	380 U	380 U	350 U
2,2'-oxybis(1-Chloropropane)	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Acetophenone	360 U	360 U	400 U	350 U	380 U	380 U	350 U
4-Methylphenol	360 U	360 U	400 U	350 U	380 U	380 U	350 U
N-Nitroso-di-n-propylamine	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Hexachloroethane	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Nitrobenzene	360 U	360 Ú	400 U	350 U	380 U	380 U	350 U
Isophorone	360 U	360 U	400 U	350 U	380 U	380 U	350 U
2-Nitrophenol	360 U	360 U	400 U	350 U	380 U	380 U	350 U
2,4-Dimethylphenol	360 U	360 U	400 U	350 U	380 U	380 U	350 U
bis(2-Chloroethoxy)methane	360 U	360 U	400 U	350 U	380 U	380 U	350 U
2,4-Dichlorophenol	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Naphthalene 1	360 U	360 U	400 U	350 U	380 U	380 U	350 U
4-Chloroaniline	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Hexachlorobutadiene	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Caprolactam	360 U	360 U	400 U	350 U	380 U	380 U	350 U
4-Chloro-3-methylphenol	360 U	360 U	400 U	350 U	380 U	380 U	350 U
2-Methylnaphthalene	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Hexachlorocyclopentadiene	360 U	360 U	400 U	350 U	380 U	380 U	350 U
2,4,6-Trichlorophenol	360 U	360 U	400 U	350 U	380 U	380 U	350 U
2,4,5-Trichlorophenol	910 U	900 U	1000 U	890 U	940 U	940 U	870 U
1,1'-Biphenyl	360 U	360 U	400 U	350 U	380 U	380 U	350 U
2-Chioronaphthalene	360 U	NAME AND ADDRESS OF THE OWNER, WHEN	400 U	350 U	380 U	380 U	350 U
2-Nitroaniline	910 U	900 U	1000 U	890 U	940 U	940 U	870 U
	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Dimethylphthalate	The first Stiffered by of Stone or a filter.	360 U	400 U	350 U	380 U	380 U	350 U
2,6-Dinitrotoluene	360 U	The second secon	400 U	350 U	380 U	380 U	350 U
Acenaphthylene	360 U	and the second line amount of the control for the	THE RESERVE OF THE PARTY OF THE	890 U	940 U	940 U	870 U
3-Nitroaniline	910 U	900 U	THE RESERVE THE PERSON IN	NAME OF TAXABLE PARTY OF TAXABLE PARTY.	NAME OF THE OWNER, THE PARTY OF	AND RESIDENCE OF CHARGE CO. LANSING	350 U
Acenaphthene	360 U	360 U	400 U	350 U	A STREET STOLEN STOLEN STOLEN	THE ADMINISTRATION OF THE PARTY OF THE PARTY.	870 U
2,4-Dinitrophenol	910 U	900 U	1000 U	890 U	940 U	940 U	The second secon
4-Nitrophenol	910 U	900 U	1000 U	890 U	940 U	940 U	A LINE OF THE PARTY AND ADDRESS.
Dibenzofuran	360 U	360 U	400 U	350 U	380 U	380 U	350 U
2,4-Dinitrotoluene	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Diethylphthalate	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Fluorene	360 U	360 U	400 U	350 U	380 U	380 U	350 U
4-Chlorophenyl-phenyl ether	360 U	360 U	400 U	350 U	380 U	380 U	350 U
4-Nitroaniline	910 U	900 U	1000 U	890 U	940 U	940 U	870 U
4,6-Dinitro-2-methylphenol	910 U	900 U	1000 U	890 U	940 U	940 U	870 U
N-Nitrosodiphenylamine	360 U	360 U	400 U	350 U	380 U	380 U	350 U
4-Bromophenyl-phenylether	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Hexachlorobenzene	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Atrazine	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Pentachlorophenol :	910 U	900 U	1000 U	890 U	940 U	940 U	870 U
Phenanthrene	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Anthracene	360 U	360 U	400 U	350 U	380 U	380 U	350 U
Carbazole	360 U	360 U	400 U	350 U	380 U	380 U	350 U

Case No. :

28507

SDG:

Reviewer: Y. Hsieh

Laboratory:

ATAS

Matrix:

Soil

FGM63

Units:

ug/Kg

SEMIVOLATILE EPA SAMPLE NUMBER :	FLAG		FLAG		FLAG		FLAG		FO 1175	FLAG		FLAG		rLAG
	FG-M72		FG-M73		FG-M74	_	FG-M75		FG-M76		FG-M77		FG-M78	
Di-n-butylphthalate	19	IJ	24	LJ	21	LJ	350	U	380	U	380	U	350	U
Fluoranthene	360	U	360	U	400	U	350	U	380	U	380	U	350	U
Pyrene	360	U	360	U	400	U	350	U	380	U	380	U	350	U
Butylbenzylphthalate	360	U	360	U	400	U	350	U	380	U	380	U	350	U
3,3'-Dichlorobenzidine	360	U	360	U	400	U	350	U	380	U	380	U	350	U
Benzo(a)anthracene	360	U	360	U	400	U	350	U	380	U	380	U	350	U
Chrysene	360	U	360	U	400	U	350	U	380	U	380	U	350	U
bis(2-Ethylhexyl)phthalate	230	LJ	290	LJ	400	U	350	U	380	U	380	U	350	U
Di-n-octylphthalate	360	U	360	U	400	U	350	U.	380	U	380	U	350	U
Benzo(b)fluoranthene	360	U	360	U	400	U	350	U	380	U	380	U	350	U
Benzo(k)fluoranthene	360	U	360	U	400	U	350	U	380	U	380	U	350	U
Benzo(a)pyrene	360	U	360	U	400	U	350	U	380	U	380	U	350	U
Indeno(1,2,3-cd)pyrene	360	U	360	U	400	U	350	U	380	U	380	U	350	U
Dibenzo(a,h)anthracene	360	U	360	U	400	U	350	U	380	U	380	U	350	U
Benzo(g,h,i)perylene	360	U	360	U	400	U	350	U	380	U	380	U	350	U
Sample wt (g):	30		30		30		30		30		30		30	
%Moisture :	9		8		17		7		12		12		5	
Dilution Factor:	. 1		1		1		1		1		1		1	
Level:	Low		Low		Low		Low		Low		Low		Low	
Number of TIC's :	8		10		12		9	1	14		10		12	!

Case No. :

28507

SDG:

FGM63

Reviewer: Y. Hsieh

Laboratory:

ATAS

Matrix:

Soil

Units:

ug/Kg

SEMIVOLATILE EPA SAMPLE NUMBER :	FLAG FG-M79	FLAI FG-M80	FG-M81	FLAG FG-M82	FLAG FG-M83	FLAG FG-M84	FLAG FG-M85
Benzaldehyde	50 LJ	410 U	53 LJ	390 U	390 U	390 U	410 U
Phenol	490 U	410 U	430 U	390 U	390 U	390 U	410 U
bis-(2-Chloroethyl) ether	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2-Chlorophenol	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2-Methylphenol	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2,2°-oxybis(1-Chloropropane)	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Acetophenone	39 LJ	22 LJ	430 U	390 U	390 U	390 U	410 U
4-Methylphenol	490 U	410 U	430 U	390 U	390 U	390 U	410 U
N-Nitroso-di-n-propylamine	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Hexachloroethane	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Nitrobenzene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Isophorone	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2-Nitrophenol	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2,4-Dimethylphenol	490 U	410 U	430 U	390 U	390 U	390 U	410 U
bis(2-Chloroethoxy)methane	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2,4-Dichlorophenol	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Naphthalene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
4-Chloroaniline	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Hexachlorobutadiene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Caprolactam	490 U	410 U	430 U	390 U	390 U	390 U	410 U
4-Chloro-3-methylphenol	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2-Methylnaphthalene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Hexachlorocyclopentadiene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2,4,6-Trichlorophenol	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2,4,5-Trichlorophenol	1200 U	1000 U	1100 U	990 U	980 U	990 U	1000 U
1,1'-Biphenyl	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2-Chloronaphthalene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2-Nitroaniline	1200 U	1000 U	1100 U	990 U	980 U	990 U	1000 U
Dimethylphthalate	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2,6-Dinitrotoluene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Acenaphthylene San Acenaphthylene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
3-Nitroaniline	1200 U	1000 U	1100 U	990 U	980 U	990 U	1000 U
Acenaphthene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2,4-Dinitrophenol	1200 U	1000 U	1100 U	990 U	980 U	990 U	1000 U
4-Nitrophenol	1200 U	1000 U	1100 U	990 U	980 U	990 U	1000 U
Dibenzofuran	490 U	410 U	430 U	390 U	390 U	390 U	410 U
2,4-Dinitrotoluene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Diethylphthalate	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Fluorene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
4-Chlorophenyl-phenyl ether	490 U	410 U	430 U	390 U	390 U	390 U	410 U
4-Nitroaniline	1200 U	1000 U	1100 U	990 U	980 U	990 U	1000 U
4,6-Dinitro-2-methylphenol	1200 U	1000 U	1100 U	990 U	980 U	990 U	1000 U
N-Nitrosodiphenylamine	490 U	410 U	430 U	390 U	390 U	390 U	410 U
4-Bromophenyl-phenylether	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Hexachlorobenzene	-5 490 U	410 U	430 U	390 U	390 U	390 U	410 U
Atrazine	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Pentachlorophenol	1200 U	1000 U	1100 U	990 U	980 U	990 U	1000 U
Phenanthrene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Anthracene	490 U	410 U	430 U	390 U	390 U	390 U	410 U
Carbazole	490 U	410 U	430 U	390 U	390 U	390 U	410 U

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

Case No. :

28507

SDG:

FGM63

Reviewer: Y. Hsieh

Laboratory:

ATAS

Matrix:

Soil

Units:

SEMIVOLATILE		FLAG		FLAG		FLAG		FLAG		FLAG		FLAG		FLAG
EPA SAMPLE NUMBER :	FG-M79		FG-M80		FG-M81		FG-M82		FG-M83		FG-M84		FG-M85	
Di-n-butylphthalate	490	U	410	U	430	U	390	U	390	U	390	Ü	410	U
Fluoranthene	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Pyrene	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Butylbenzylphthalate	490	U	410	U	430	U	390	U	390	U	390	U	410	
3,3'-Dichlorobenzidine	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Benzo(a)anthracene	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Chrysene	490	U	410	U	430	U	390	U	390	U	390	U	410	U
bis(2-Ethylhexyl)phthalate	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Di-n-octylphthalate	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Benzo(b)fluoranthene	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Benzo(k)fluoranthene	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Benzo(a)pyrene	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Indeno(1,2,3-cd)pyrene	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Dibenzo(a,h)anthracene	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Benzo(g,h,l)perylene	490	U	410	U	430	U	390	U	390	U	390	U	410	U
Sample wt (g):	30		30)	30		30		30		30		30	
%Moisture :	32		20)	23		16		15		16		20	
Dilution Factor :	1		1		1		1		1		1		1	
Level:	Low		Low	,	Low		Low		Low		Low		Low	
Number of TIC's :	30		15	i	25		16		10		8		12	

Case No.:

28507

SDG:

FGM63

Reviewer: Y. Hsieh

Laboratory:

ATAS

Matrix:

Soil

Units:

PESTICIDES/PCBs EPA SAMPLE NUMBER:	FG-M63	FLAG	FG-M64	FLAG	FG-M65	FLAG	FG-M66	FLAG	FG-M67	FLAG	FLAG FG-M67DL	FG-M71	FLAG
EPA SAMPLE NUMBER :	FG-IVI63		FG-M64	-	FG-M05	-	FG-W00	1800	FG-M07	-	T-G-MO7DL	FG-M/1	-
alpha-BHC	0.52	LJ	4.0	J	2.0	U	2.2	U	2.0	U	3.7 U *	2.0	U
beta-BHC	6.5	J	24	J	0.26	LJ	2.2	U	0.21	LJ	3.7 U*	2.0	U
delta-BHC	2.0	U	2.2	U	2.0	U	0.57	LJB	2.0	U	3.7 U *	0.69	LJB
gamma-BHC (Lindane)	2.0 1	U	2.2	U	2.0	U	2.2	U	2.0	U	3.7 U*	2.0	U
Heptachlor	3,5	J	2.2	U	2.0	U	2.2	U	2.0	U	0.19	2.0	U
Aldrin -	0.56	LJ	6.1	J	2.0	U	2.2	U	2.0	U	3.7 U*	2.0	U
Heptachlor epoxide	0.69	LJ	2.2	U	2.0	U	0.25	LJ	2.0	U	3.7 · U •	2.0	U
Endosulfan I	1.2	LJ	18	J	2.0	U	2.2	U	2.0	U	3.7 U *	2.0	U
Dieldrin	0.46	LJ	5.0	J	3.8	U	0.65	LJB	3.9	U	7.2 U*	0.58	LJB
4,4'-DDE	24		27	J	28	J	4.7		34	J	29 *	0.82	LJ
Endrin	3.8	Ü	4.2	U	3.8	U	4.2	U	3.9	Ü	7.2 U •	3.8	U
Endosulfan II	3.3	LJ	15	J	3.8	U	4.2	U	3.9	U	7.2 U*	3.8	U
4,4'-DDD	8.6		18	J	9.8	4000	1.7	LJ:	6.7	J^ `	5.9	3.8	U
Endosulfan sulfate	5.7	J	20	-	3.8	U	0.71	LJ	3.9	U	7.2 U*	0.74	LJ
4,4'-DDT	44	J	53	J	50		9.5		61	10 AC	52	3.1	LJB
Methoxychlor	4.5	LJ	18	LJ	20	U	22	U	20	U	37 U*	20	
Endrin ketone	2.7	LJ	5.8		3.8	Ú	0.66	LJB :	3.9	υ	7.2 U*	3.8	U
Endrin aldehyde	1.7	LJ	16	J	3.8	U	1.4	LJ	3.9	U	7.2 U*	0.94	LJ
alpha-Chlordane	2.0	Ú	2.2	U	2.0	U	0.33	W	2.0	U	3.7 U*	0.35	LJ
gamma-Chlordane	1.7	LJ	16	J	2.0	U	1.1	LJB	2.0	U	3.7 U*	0.73	LJB
Toxaphene	200 (U	220	U	130	LJB	220	U	140	LJ >	120	200	U
Aroclor-1016	38 1	U	42	U	38	U	42	U	39	U	72 U*	38	U
Aroclor-1221	78 (U	86	U	77	U	85	U	79	U	150 U *	78	U
Arodor-1232	38 (U	42	U	38	U	42	U	39	U	72 U*	38	U
Aroclor-1242	38 1	U	42	U	38	U	42	U	39	U	72 U *	38	U
Aroclor-1248	38 (U	42	U	38	U	42	U	39	U	72 U*	38	U
Arodor-1254	38 (U	42	U	38	U	42	Ü	39	Ü	72 U*	38	U
Aroclor-1260	38 (U	42	U	38	U	42	U	39	U	72 U *	38	U
Sample wt (g) :	30		30		30		30		30		30	30	ľ
%Moisture :	14		22		13		21		15		8	14	
Dilution Factor :	1		1		1		1		1		2	1	

Case No. :

28507

SDG:

FGM63

Reviewer: Y. Hsieh

Laboratory:

ATAS

Note:

Matrix:

Units:

PESTICIDES/PCBs	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER :	FG-M72	FG-M73	FG-M73DL	FG-M74	FG-M75	FG-M76	FG-M77
alpha-BHC	1.9 U	1.8 U	5,5 U *	2.0 U	1.9 U	1.9 U	1.9 U
beta-BHC	1.9 U	1.8 U	5.5 U*	2.0 U	1.9 U	1.9 U	1.9 U
delta-BHC	0.47 LJB	0.46 LJB	3.7	2.0 U	1.9 U	1.9 U	1.9 U
gamma-BHC (Lindane)	1.9 U	1.8 U	5.5 U*	2.0 U	1.9 U	1.9 U	1.9 U
Heptachlor	1.9 U	1.8 U	5.5 U*	2.0 U	1.9 U	1.9 U	1.9 U
Aldrin	1.9 U	1.8 U	0.34 *	2.0 U	1.9 U	1.9 U	1.9 U
Heptachlor epoxide	1.9 U	1.8 U	5.5 U*	2.0 U	1.9 U	1.9 U	1.9 U
Endosulfan I	1.9 U	1.8 U	5.5 U*	2.0 U	1.9 U	1.9 U	1,9 U
Dieldrin	3.6 U	3.6 U	11 U*	4.0 U	3.8 U	3.8 U	3.8 U
4,4'-DDE	24	52 •	59	2.1 LJ	13	3.4 LJ	4.3
Endrin :	3.6 U	3.6 U	11 U*	4.0 U	3.8 U	3.8 U	3.8 U
Endosulfan II	3.6 U	3.6 U	11 U*	4.0 U	3.8 U	3.8 U	3.8 U
4,4'-DDD	3.6 U	3.6 U	11 U*	1.4 LJB	3.8 U	3.8 U	3.8 U
Endosulfan sulfate	3.6 U	3.6 U	11 U*	4.0 U	3.8 U	3.8 U	3.8 U
4.4'-DDT		110 *	120	3.5 LJB	29	MINERAL TO SECURIT AND ADDRESS OF	115
Methoxychlor	19 U	18 U	55 U °	13 LJ	19 U	19 U	19 U
Endrin ketone	3.6 U	3.6 U	11 U	4.0 U	3.8 U	3.8 U	3.8 U
Endrin aldehyde	3.6 U	3.6 U	11 U*	0.86 LJ	3,8 U	3.8 U	3.8 U
alpha-Chlordane	1.9 U	1.8 U	5.5 U*	0.29 LJ	1.9 U	1.9 U	1,9 U
gamma-Chlordane	1.9 U	1.8 U	5.5 U*	2.0 U	1.9 U	1.9 U	1.9 U
Toxaphene	88 LJ	260	280 *	200 U	52 LJ	63 LJ	46 LJ
Aroclor-1016	36 U	36 U	110 U*	40 U	38 U	38 U	38 U
Arodor-1221	74 U	73 U	220 U °	81 U	76 U	76 U	76 U
Aroclor-1232	36 U	36 U	110 U*	40 U	38 U	38 U	38 U
Arodor-1242	36 U	36 U	110 U*	40 U	38 U	38 U	38 U
Aroclor-1248	36 U	36 U	110 U*	40 U	38 U	38 U	38 U
Arodor-1254	36 U	36 U	110 U*	40 U	38 U	38 U	38 U
Aroclor-1260	36 U	36 U	110 U*	40 U	38 U	38 U	38 U
Sample wt (g) :	30	30	30	30	30	30	30
%Moisture :	9	8	8	17	12	12	12
Dilution Factor :	1	1	3	1	1	1	1

Case No. :

28507

SDG:

FGM63

Reviewer: Y. Hsieh

Laboratory:

盐:

ATAS

Matrix:

Soil

Units:

PESTICIDES/PCBs	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER :	FG-M78	FG-M78DL	FG-M79	FG-M80	FG-M81	FG-M82	FG-M83
alpha-BHC	1.8 U	36 Ú*	0.41 LJ	2.1 U	22 U	2.0 U	2.0 U
beta-BHC	0.78 LJ	36 U*	0.50 LJ	2.1 U	2.2 U	2.0 U	2.0 U
delta-BHC	1.8 U	36 U*	1,1 LJB	2.1 U	2.2 U	2.0 U	2.0 U
gamma-BHC (Lindane)	1.8 U	36 U*	2.5 U	2.1 U	2.2 U	2.0 U	2.0 U
Heptachlor	1.8 U	36 U *	2.5 U	2.1 U	2.2 U	2.0 U	2.0 U
Aldrin	1.8 U	36 U *	0.26 LJ	2.1 U	2.2 U	2.0 U	2.0 U
Heptachlor epoxide	1.8 U	36 U*	0.45 LJ	2.1 U	2.2 U	2.0 U	2.0 U
Endosulfan I	1.8 U	36 U*	1.1 LJ	2.1 U	2.2 U	2.0 U	2.0 U
Dieldrin	3.5 U	69 U*	0.93 LJ	4.1 U	4.3 U	3.9 U	3.9 U
4,4'-DDE	140 *	170	40	18	4.3 U	3.9 U	4.9
Endrin	3,5 U	69 U*	4.0 LJ	4.1 U	4.3 U	3.9 U	3.9 U
Endosulfan II	3.5 U	69 U *	3.2 LJ	4.1 U	4.3 U	3.9 U	3.9 U
4,4'-DDD	3.5 U	69 U*	6.1	6.2 J^	4.3 U	3.9 U	3.9 U s
Endosulfan sulfate	3.5 U	69 U*	1.0 LJ	4.1 U	0.47 LJ	3.9 U	3.9 U
4,4'-DDT	470	700	60	7.3 J	4.3 U	18 J	5.6 J
Methoxychlor	18 U	360 U*	4.0 LJ	21 U	5.9 LJ	20 U	20 U
Endrin ketone	3.5 U	69 U*	1.1 LJ	4.1 U	4.3 U V	3.9 U	3.9 U
Endrin aldehyde	3.5 U	69 U*	4.1 LJ	4.1 U	0.44 LJ	3.9 U	3.9 U
alpha-Chlordane	1.8 U	36 U*	0.79 LJ	2.1 U	2.2 U	2.0 U	2.0 U
gamma-Chlordane	1.8 U	36 U*	0.73 LJ	2.1 U	2.2 U	2.0 U	2.0 U
Toxaphene	1400 J	1600	250 U	48 LJ	220 U	480	62 LJ
Aroclor-1016	35 U	690 U *	49 U	41 U	43 U	39 U	39 U
Arodor-1221	71 U	1400 U *	99 U	84 U	87 U	80 U	79 U
Aroclor-1232	35 U	690 U*	49 U	41 U	43 U	39 U	39 U
Aroclor-1242	35 U	690 U*	49 U	41 U	43 U	39 U	39 U
Aroclor-1248	35 U	690 U *	49 U	41 U	43 U	39 U	39 U
Aroclor-1254	35 U	690 U*	49 U	41 U	43 U	39 U	39 U
Aroclor-1260	35 U	690 U •	49 U	41 U	43 U	39 U	39 U
Sample wt (g):	30	30	30	30	30	30	30
%Moisture :	5	5	32	20	23	16	15
Dilution Factor :	1	20	1	1	1	1	1

Case No. :

28507

SDG:

FGM63

Reviewer: Y. Hsieh

Laboratory:

ATAS

Matrix:

Units: ug/Kg

PESTICIDES/PCBs EPA SAMPLE NUMBER :	FLAG FG-M84	FG-M85	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
alpha-BHC	2.0 U	2.1	2097360	electric Medicals		re u euse	20.140/2004/2004/2	
beta-BHC	2.0 U	2.1	Charles Contract Cont	Harate and Market and Atlantice	AND THE PROPERTY OF THE PARTY O	2008/WWW.0524	ACTION AND ADMINISTRAÇÃO DE COMPANSA DE CO	AND STREET, STREET, ST.
delta-BHC	2.0 U	2.1			2016年1月1日	EEEE ET 4 TOOM	9件等的抗力	
gamma-BHC (Lindane)	2.0 U	2.1	U	Deligati, compensation to be the brief action	To Color Someon State Carlot Services	-constant of the second	THE RESERVE AND THE PERSON	HEROTER SECTION SECTION SECTION
Heptachlor	2.0 U	2.1	U	以外,从此时	TOTAL SECTION	200		有种的方式 等
Aldrin	2.0 U	2.1	U		1 01 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10			
Heptachlor epoxide	2.0 U	2.1	U					
Endosulfan I	2.0 U	2.1	U					
Dieldrin	3.9 U	4.1	U			表现是		
4,4'-DDE	4.8 J	4.1	U					
Endrin	3.9 U	4.1	U					0.0
Endosulfan II	3.9 U	4.1						
4,4'-DDD	3.9 U	4.1	U					
Endosulfan sulfate	3.9 U	4.1	U					
4,4'-DDT	9.9 JB	4.1	U					
Methoxychlor	20 U	21	U					
Endrin ketone	3.9 U	4.1	U			图		
Endrin aldehyde	3.9 U	4.1						
alpha-Chlordane	2.0 U	2.1	U					
gamma-Chlordane	2.0 U	2.1						
Toxaphene	220 J	210	U			A PARTY	建筑	
Aroclor-1016	39 U	41	U					
Arodor-1221	80 U	84	U				Action to the	
Aroclor-1232	39 U	41	U					
Aroclor-1242	39 U	41	U			1	拉斯拉斯里	
Aroclor-1248	39 U	41	U					
Aroclor-1254	39 U	41	U	SEASON STATE			用型 图为 2	
Aroclor-1260	39 U	41	U					
Sample wt (g) :	30	30)					
%Moisture :	16	20)					
Dilution Factor :	1	. 1						

INORGANIC/ORGANIC COMPLETE SDG FILE (CSF) INVENTORY CHECKLIST

EPA Lab ID: ATAS	ORIGINA	I C	Lyma	Lava	T
			YES	NO	N/A
Lab Location: 875 Fee Fee Road, Maryland heights, M			v		
Region: 6 Audit No.: 28507/FGM63		on package?	X	-	-
	X 2. Intact up	oon receipt?	X	344	-
Box No(s): 1 COMMENTS:		ing scheme accurate?	x	17 14	
	4. Are encl	losed documents listed?	Х	111110	
	5. Are liste	ed documents enclosed?	X	1	
	FORM DO	:-1			
	6. Present?		X		1
	7. Complet	te?	X		
	8. Accurate	e?	X		
	CHAIN-OI RECORD(F-CUSTODY (s)		- 12	
	9. Signed?		x		
	10. Dated?		X	from L	
		REPORT(s) LIST(s)			
	11. Signed?	III a	x		
	12. Dated?	1.0	X		
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	14. Signed?		X		\vdash
	15. Dated?		X		
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	18. Comple		x		
	19. Legible		X		\vdash
	20. Origina		-	Х	
Over for additional comments.	20a.If "NO	", does the copy indicate riginal documents are located?	х		
Audited by: Mark Per Manil	Ying-Ping	g Hsieh / ESAT Data Reviewer	Date	10/1	3/00
Audited by:			Date	:	
Audited by:			Date	. —	
Signature		Printed Name/Title		-	
]	O BE COMPLETED BY	CEAT		11-11-11-11	
Date Recvd by CEAT:	Date Entered:	Date Reviewed	l:		
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Signature	_	Printed Name/Title			

DC-2___

Page 1 of 2

In Reference to Case No(s):
28507 SDG: FGM63 (0-2267)

Contract Laboratory Program REGIONAL/LABORATORY COMMUNICATION SYSTEM FAX Record Log

Laboratory Name:	ATAS
Lab Contact:	Robert Wilhelm
Region:	6
Regional Contact:	Mahmoud El-Feky - EPA
ESAT Reviewer:	Ying-Ping Hsieh - LMSG
FAX initiated by:	Laboratory X Region

In reference to data for the following fractions:

Pest/PCB

Summary of Questions/Issues:

- 1. Please explain why the laboratory did not dilute and reanalyze samples FG-M63 and FG-M64 with β -BHC, δ -BHC, endosulfan I, DDE, dieldrin, and/or endrin peak responses exceeding those in the high point Individual Mix A or Mix B standards in the initial calibration (OLM04.2, p. D-66/PEST, sec. 11.3.5).
- 2. The retention times were outside the windows on one column for heptachlor epoxide in sample FGM71 (page 1779) and γ -BHC in sample FGM64MSD (page 1770). Please comment and make the necessary resubmissions.

NOTE: Any laboratory resubmission should be submitted either as an addendum to the original CSF with a revised Form DC-2 or submitted as a new CSF with a new Form DC-2 (OLM04.2, p. B-26, 2.7.3), except those containing only replacement pages. Custody seals are required for all CSF resubmission shipments.

FAX COMMUNICATION LOG

Continuation Page 2
Laboratory/Contact ATAS/Robert Wilhelm
In Reference To Case No. 28507 SDG: FGM63

Please respond to the above items within 7 days to:

Mr. Mahmoud El-Feky
U.S. EPA Region 6 Laboratory
10625 Fallstone Road
Houston, TX 77099

If you have any questions, please contact me at (281) 983-2128.

| 10 - 18-00 | Signature | Date

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SEE REVERSE FOR PURPOSE CODE DEFINITIONS

CEDA United State	es Environmental Protection Agency	Organic Traffic Repo		7
	ontract Caboratory Program	(For Organic CLP Analysis)	2850	/ !!
1. Project Code Account Code	2. Region No. Sampling Co.	4. Date Shipped Carrier 9/12/00 Fed EX	6. Matrix	7. Preservative
	Sampler (Name)	Airbill Numbers 1334-02	In Column A)	
Non-Superfund Program	Sampler Signature	5. Ship To	3. Leachate	3. NaHSO4 4. H2SO4
The state of the s	3. Purpose* : Early Action . Long-Term	875 Fee Fee Road	5. Soil/Sedimo	nly) 6.Other
Site Name BPS, TNC. Site Spill ID 1	SF. PAR REM. RD FS. v. RD PRP RIP G RA TR	Mary land Heightsing	A STAN Waste (High only) 8. Other (Spe in Column	cify N. Not
Helena, AR i	FED SI COMM	ATTN: Rich Mannz	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 32 %
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	5 XX 6-199	446-47 3502	9/12/100 9:52 MEJW	64 735
FGM 65 5 L-G	5 XX 6-199	449-50 5503	9/12/00 10114 MEJW (65 73 :
FEM 66 5 L. G	5 11 XX 2.4 2-6-183	8528-539 \$5504	9/12/00 10:45 METW	
F6W67 5 L= 6 9	5 XX 9 6-183	855-569 35505	7/12/00 11507 MFJW	67 13
F6M68 5 L 6 9	5 XX = 56-183	858-59- 5506	9/12/00 11507 MFJW	68 7300 Dof5505
	5 XX 6-183	861-62 5507	9/12/009:17 MFTW	69 738
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Shipment for Case Page 1 Page	Sample(s) to be Used for Laboratory QC	Additional Sample Signatures	Chain of Cus	lody Seal Number(s) 금도원일 준
1/1/1		CHAIN OF CUSTODY RECORD	· · · · · · · · · · · · · · · · · · ·	1 31
Relinquished by: Signature	Date Time Received by: (Signature)	× III	X cdr.	eived by: "(Signature): served
Relinquished by: (Signature)	Date Time Received by: (Signati	Relinquished by: (Signal	ture) E Date / Time Red	ceived by: (Signature)
Relinquished by: (Signature)	Date / Time Received for Laborato	ory by: " Date / Time Re	marks Is custody seal intact? Y	/N/none
	(Signature)		* 1	/N/none

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Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8781.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 14 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG (

100-52-7	Benzaldehyde	380	U
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2-Methylphenol 2,2'-oxybis(1-Chloropropane)	380	- U
98-86-2	_Acetophenone	380	U
106-44-5	-4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	_2,4-Dimethylphenol	380	U
111-91-1	bis (2-Chloroethoxy) methane	380	U
120-83-2	2.4-Dichlorophenol	380	U
91-20-3	Naphthalene 4-Chloroaniline	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
	-Caprolactam -	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
01 - 57 - 6	2 Mothylnaphthalene	380	"ט
77-47-4	-Hexachlorocyclopentadiene	380	U
88-06-2	-2,4,6-Trichlorophenol	380	U
95-95-4	Hexachlorocyclopentadiene 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol 1,1'-Biphenyl	970	U
92-52-4	1,1'-Biphenyl	380	U
31-20-1	2-Chioronaphthaiene	380	U
88-74-4	2-Nitroaniline	970	U
131-11-3	Dimethylphthalate	380	U
606-20-2	2,6-Dinitrotoluene	380	U
208-96-8	_Acenaphthylene	380	U
99-09-2	3-Nitroaniline	970	U
83-32-9	Acenaphthene	380	

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8781.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 14 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

		(ug/II or ug/kg/ oo/ko	
51-28-5		970	U
100-02-7	_4-Nitrophenol	970	U
132-64-9		380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	_Diethylphthalate	24	J
86-73-7	Fluorene	380	U
7005-72-3	4-Chlorophenyl-phenylether_	380	U
100-01-6	4-Nitroaniline	970	U
534-52-1	4,6-Dinitro-2-methylphenol	970	U
86-30-6	N-Nitrosodiphenvlamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
1912-24-9	-Atrazine	380	U
87-86-5	Pentachlorophenol	970	U
85-01-8	Phenanthrene	380	U
	Anthracene	380	U
	Carbazole	380	U
	Di-n-butylphthalate	27	J
206-44-0	Fluoranthene	20	J
129-00-0	Pyrene	20	J
85-68-7	_Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a) anthracene	380	U
218-01-9	Chrysene	20	J
117-81-7	_bis(2-Ethylhexyl)phthalate_	91	J
117-84-0	_Di-n-octylphthalate	72	BJ
205-99-2	_Benzo(b)fluoranthene	380	
207-08-9	Benzo (k) fluoranthene	380	
50-32-8	_Benzo(a)pyrene	-	
193-39-5	Indeno(1,2,3-cd)pyrene	-	ŭ
	Dibenz (a, h) anthracene	-	
191-24-2	Benzo(g,h,i)perylene	380	t
Cannot be	seperated from Diphenylamine		

FGM63

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.01

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: F8781.D

Level: (low/med) LOW

Date Received: 09/13/00

% Moisture: 14

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.1

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 26

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
.======== 1.	UNKNOWN	4.45	580	
1:	UNKNOWN	4.62	1000	BJ
3.	UNKNOWN	5.08	460	J
3.4.	UNKNOWN	5.78	1300	J
5.	UNKNOWN	6.05	140	J
6. 445-03-4	BENZENAMINE, 4-CHLORO-2-(TRI	6.84	350	JN
7	UNKNOWN	7.48	230	BJ
8.	UNKNOWN	7.53	270	BJ
9. 1897-45-6	TETRACHLOROISOPHTHALONITRILE	12.02	100	JN
0. 527-20-8	2,3,4,5,6-PENTACHLOROANILINE	12.35	170	JN
1	UNKNOWN	13.53	360	J
2.	UNKNOWN	13.63	140	J
	UNKNOWN	14.19	120	J
	UNKNOWN	14.61	110	J
	UNKNOWN	14.98	88	J
.7	UNKNOWN	15.46	97	J
.7.	UNKNOWN	16.36	89	J
18.	UNKNOWN	16.47	120	J J J
.9.	UNKNOWN	16.78	120	J
	UNKNOWN	17.20	160	J
21.	UNKNOWN	17.48	110	BJ
22.	UNKNOWN	18.34	130	J
23.	UNKNOWN	19.45	140	J
22.	UNKNOWN	19.87	190	J
	UNKNOWN	20.33	130	J
	UNKNOWN	21.45	560	J
30.				

Lab Name: ATAS, INC Contract: 68-W-00-066

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Lab Code: ATAS

Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8800.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 22 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

100-52-7	Benzaldehyde	180	J
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl)ether	420	U
95-57-8	2-Chlorophenol	420	U
95-48-7	2-Methylphenol	420	ט די
108-60-1	2,2'-oxybis(1-Chloropropane)	420	ט
98-86-3	Acetophenone	140	J
106-44-5	4-Methylphenol N-Nitroso-di-n-propylamine Hexachloroethane	420	U
621-64-7	N-Nitroso-di-n-propylamine	420	U
67-72-3	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis (2-Chloroethoxy) methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
91-20-3	Naphthalene	51	- j
106-47-8	_4-Chloroaniline Hexachlorobutadiene	420	U
87-68-3	Hexachlorobutadiene	420	T T
105-60-2	Caprolactam	50	
59-50-	4-Chloro-3-methylphenol	420	U
91-57-6	2-Methylnaphthalene	110	J
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,6-Trichlorophenol 2,4,5-Trichlorophenol 1,1'-Biphenyl	1100	T
92-52-4	1,1'-Biphenyl	420	- τ
91-58-	/ 2-Chioronaphthalene	420	J
88-74-4	2-Nitroaniline	1100	J
131-11-1	Dimethylphthalate	420	- τ
606-20-2	2,6-Dinitrotoluene	420	T T
208-96-	Acenaphthylene	420	J
99-09-	2 3-Nitroaniline	1100	t
83-32-	Acenaphthene	420	J

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8800.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 22 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	(ug/L or ug/kg) UG/kG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	_Diethylphthalate	35	J
86-73-7	Fluorene	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1) 4-Bromophenyl-phenylether	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	2300	
1912-24-9		420	U
	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	28	J
120-12-7	Anthracene	420	U
86-74-8	Carbazole	420	U
84-74-2	_Di-n-butylphthalate	34	J
206-44-0	Fluoranthene	420	U
129-00-0	Pyrene	420	U
85-68-7	Butylbenzylphthalate	420	U
91-94-1	_Butylbenzylphthalate_ 	420	U
56-55-3	Benzo(a)anthracene	35	J
218-01-9	Chrysene	75	J
117-81-7	_bis(2-Ethylhexyl)phthalate	420	
117-84-0	Di-n-octylphthalate	140	BJ
205-99-2	Benzo (b) fluoranthene	420	U
207-08-9	Benzo(k)fluoranthene	33	J
50-32-8	Benzo (a) nurene	420	U
193-39-5	Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene	420	U
53-70-3	Dibenz (a, h) anthracene	37	J
191-24-2	Benzo(g,h,i)perylene_	420	U

FGM64

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8800.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 22 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Extraction: (Type) SONC

Number TICs found: 30 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	TRIVIA CARACTER SERVICE SERVIC		=========	=====
1. 2. 3. 4. 445-03-4	UNKNOWN	4.58	840	BJ
2	UNKNOWN	5.05	500	J
3	UNKNOWN	5.75	490	J
4. 445-03-4	BENZENAMINE, 4-CHLORO-2-(TRI	6.81	400	JN
5	UNKNOWN	7.46	280	BJ
6.	UNKNOWN	7.49	330	BJ
7. 130-15-4	1,4-NAPHTHALENEDIONE	9.20	2100	JN
8. 90-15-3	1-NAPHTHALENOL	9.86	2200	JN
9. 608-93-5	BENZENE, PENTACHLORO-	9.99	2500	JN
10	UNKNOWN	10.51	560	J
11. 634-83-3	BENZENAMINE, 2,3,4,5-TETRACH	10.77	300	JN
12. 7320-53-8	DIBENZOFURAN, 4-METHYL-	11.01	300	JN
13. 82-68-8	BENZENE, PENTACHLORONITRO-	11.70	10000	JN
14. 527-20-8	2,3,4,5,6-PENTACHLOROANILINE		30000	JN
15	UNKNOWN	12.41	280	J
16. 135-19-3	2-NAPHTHALENOL	12.56	4100	JN
	UNKNOWN	12.76	1200	J
17. 18. 1825-19-0	PENTACHLOROTHIOANISOLE	12.92	2900	JN
19.	UNKNOWN	13.50	350	J
19	UNKNOWN	13.59	1000	Ĵ
21	UNKNOWN	14.15	540	J
21.	PENTACHLOROPHENYL METHYL SUL		820	JN
22.	UNKNOWN	16.86	950	J
23.	UNKNOWN	16.90	530	J
24.	UNKNOWN	16.96		J
25.			1500	"
20.	UNKNOWN	17.17	280	'
41.	UNKNOWN	18.73	750	3
20.	UNKNOWN	18.88	410	
43.	UNKNOWN	19.82	2700	J
30	UNKNOWN	21.36	770	J

000081

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8785.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 13 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG

01.0		(43/2 01 43/113/ 00/110	-
100-52-7	Benzaldehyde	380	U
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2.2'-oxybis(1-Chloropropane)	380	U
98-86-2	Acetophenone	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
	Nitrobenzene	380	U
78-59-1	_Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	_2,4-Dimethylphenol _bis(2-Chloroethoxy)methane _2,4-Dichlorophenol	380	U
111-91-1	bis (2-Chloroethoxy) methane	380	U
120-83-2	-2,4-Dichlorophenol	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
105-60-2	Canrolactam	380	U
59-50-7	4-Chloro-3-methylphenol 2-Methylnaphthalene Hexachlorocyclopentadiene 2,4,6-Trichlorophenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	950	U
92-52-4	1,1'-Biphenyl	380	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	950	U
131-11-3	Dimethylphthalate	380	U
606-20-2	_2,6-Dinitrotoluene_	380	U
208-96-8	Acenaphthylene	380	U
99-09-2	3-Nitroaniline	950	U
	Acenaphthene	380	U

000128

Lab Name: ATAS, INC Contract: 68-W-00-066

Matrix: (soil/water) SOIL Lab Sample ID: 30848.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8785.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 13 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

0110 110 .	2 2	9,2 01 49, 19, 00,10	*
51-28-5		950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	_Diethylphthalate	380	U
86-73-7	Fluorene	380	U
7005-72-3		380	U
	4-Nitroaniline	950	ט
534-52-1	4.6-Dinitro-2-methylphenol	950	U
86-30-6	N-Nitrosodiphenvlamine (1)	380	U
101-55-3	N-Nitrosodiphenylamine (1)	380	U
118-74-1	Hexachlorobenzene	380	U
	Atrazine	380	U
87-86-5	-Pentachlorophenol	950	U
85-01-8	Phenanthrene	380	U
	Anthracene	380	U
	-Carbazole	380	U
	Di-n-butylphthalate	22	J
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	21	
85-68-7	Butylbenzylphthalate 3,3'-Dichlorobenzidine	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a) anthracene	380	U
218-01-9	Chrysene	380	ט
117-81-7	bis(2-Ethylhexyl)phthalate	380	U
117-84-0	Di-n-octvlphthalate	88	BJ
205-99-2	Benzo(b) fluoranthene	38	J
207-08-9	Benzo(k) fluoranthene	23	J
50-32-8	Benzo(a) pyrene	380	ט
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenz (a, h) anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U
) Cannot be	seperated from Diphenylamine		

FGM65

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.05

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: F8785.D

Level: (low/med) LOW

Date Received: 09/13/00

% Moisture: 13

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/18/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 7.0

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 14

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		4.45 4.61 4.75 5.08 5.63 5.78 7.49 7.52 18.17 19.62 19.83 20.04 20.34 21.45	290 2000 150 180 100 770 130 220 240 160 230 170 260 330	Bi

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.06

Sample wt/vol:

30.0 (g/mL) G Lab File ID: F8786.D

Level: (low/med) LOW

Date Received: 09/13/00

% Moisture: 21 decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.9

Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND	(ug/L or ug/Kg) UG/KG	Q
100-52-7 Benzaldehyde	420	U
108-95-2 Phenol	420	U
111-44-4 bis (2-Chloroethyl) ethe	r 420	U
95-57-8 2-Chlorophenol	420	U
95-48-7 2-Methylphenol 108-60-1 2,2'-oxybis(1-Chloropr	420	U
108-60-1 2,2'-oxybis(1-Chloropr	opane) 420	U
98-86-2 Acetophenone	420	U
106-44-5 4-Methylphenol	420	U
621-64-7 N-Nitroso-di-n-propyla	mine 420	U
621-64-7 N-Nitroso-di-n-propyla 67-72-1 Hexachloroethane	420	U
98-95-3 Nitrobenzene	420	U
78-59-1 Isophorone	420	U
88-75-5 2-Nitrophenol	420	U
105-67-9 2,4-Dimethylphenol	420	U
111-91-1 bis (2-Chloroethoxy) met	hane 420	U
120-83-2 2 4-Dichlorophenol	420	U
91-20-3 Naphthalene	420	U
91-20-3 Naphthalene 106-47-8 4-Chloroaniline 87-68-3 Hexachlorobutadiene	420	U
87-68-3 Hexachlorobutadiene	420	U
105-60-2 _Caprolactam	420	U
59-50-7 4-Chloro-3-methylpheno	1 420	U
91-57-6 2-Methylnaphthalene	420	U
77-47-4 Hexachlorocyclopentadi	ene 420	U
88-06-2 2,4,6-Trichlorophenol_	420	U
95-95-4 2,4,5-Trichlorophenol	1100	U
92-52-4 1,1'-Biphenvl	420	U
91-58-7 2-Chloronaphthalene	420	U_
88-74-4 2-Nitroaniline	1100	U
131-11-3 Dimethylphthalate	420	U
606-20-2 2,6-Dinitrotoluene 208-96-8 Acenaphthylene	420	U
208-96-8 Acenaphthylene	420	U
99-09-2 3-Nitroaniline	1100	U
83-32-9 Acenaphthene	420	U

Lab Name: ATAS, INC Contract: 68-W-00-066

Matrix: (soil/water) SOIL Lab Sample ID: 30848.06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8786.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 21 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.9 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

	, , ,	3, 3, ,	~
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	
86-73-7	Fluorene	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	_4-Bromophenyl-phenylether _Hexachlorobenzene	420	U
1912-24-9	Atrazine	420	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	420	U
120-12-7	Anthracene	420	U
	-Carbazole	420	U
84-74-2	Di-n-butylphthalate	420	U
206-44-0	Fluoranthene	420	U
129-00-0	Pyrene	420	U
85-68-7	_Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	420	U
56-55-3	Benzo (a) anthracene	420	U
218-01-9	Chrysene	420	U
117-81-7	his(2-Ethylhexyl)phthalate	420	_ U
117-84-0	_Di-n-octylphthalate	50	BJ
205-99-2	Benzo (b) fluoranthene	420	U
	Benzo(k) fluoranthene	420	U
50-32-8	Benzo (a) pyrene	420	U
193-39-5	Indeno(1,2,3-cd)pyrene	420	U
53-70-3	Dibenz (a, h) anthracene	420	
191-24-2	Benzo(g,h,i)perylene	420	U
1) Cannot be	seperated from Diphenylamine		

FGM66

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.06

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: F8786.D

Level: (low/med) LOW Date Received: 09/13/00

decanted: (Y/N) N % Moisture: 21

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/18/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.9

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 13

CAS NUMBER COMPOUND NAME	RT	EST. CONC.	Q
1.			

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8798.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 15 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG (

100-52-7	Benzaldehyde	390	U
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
98-86-2	Acetophenone	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	4-Methylphenol N-Nitroso-di-n-propylamine	390	U
67-72-1	-Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2.4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3		390	U
105-60-2	Caprolactam	22	J
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	ט
88-06-2	Hexachlorocyclopentadiene 2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	980	U
	1,1'-Biphenyl	390	U
91-58-7	2-Chloronaphthalene	390	ט
88-74-4	2-Nitroaniline	980	U
131-11-3	_Dimethylphthalate	390	U
606-20-2	2,6-Dinitrotoluene	390	ט
208-96-8	Acenaphthylene	390	u
99-09-2	3-Nitroaniline	980	ט
83-32-9	_Acenaphthene	390	ט

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8798.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 15 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG Q

51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol	980	U
132-64-9	Dibenzofuran	390	U
121-14-2		390	U
84-66-2		22	J
86-73-7	Fluorene	390	T T
7005-72-3	4-Chlorophenyl-phenylether	390	T T
	4-Nitroaniline	980	U
534-52-1	4,6-Dinitro-2-methylphenol	980	T T
86-30-6	N-Nitrosodiphenylamine (1)	390	
101-55-3	_4-Bromophenyl-phenylether _Hexachlorobenzene	390	U
118-74-1	Hexachlorobenzene	390	U
1912-24-9	Atrazine	390	
87-86-5	Pentachlorophenol	980	
85-01-8	-Phenanthrene	390	
120-12-7	-Anthracene	390	J
86-74-8	Carbazole	390	
84-74-2	Di-n-butylphthalate	29	
206-44-0	Fluoranthene	390	J
129-00-0	Pyrene	390	J
85-68-7	Butylbenzylphthalate	390	J
91-94-1	3,37-Dichlorobenzidine	390	T T
56-55-3	Benzo(a) anthracene	390	J
218-01-9	Chrysene	390	7
117-81-7	bis(2-Ethylhexyl)phthalate	390	7
117-84-0	_Di-n-octylphthalate	73	Bo
205-99-2	Benzo(b) fluoranthene	390	- τ
207-08-9	Benzo(k) fluoranthene	390	
50-32-8	Benzo(a) pyrene	390	7
193-39-5	Indeno(1,2,3-cd)pyrene	390	t
53-70-3	_Dibenz(a,h)anthracene	390	T
191-24-2	Benzo(g,h,i)perylene	390	- _T

TENTATIVEDI IDENTITIED CONFOUNDS

FGM67

Lab Name: ATAS, INC Contract: 68-W-00-066

Number TICs found: 14

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8798.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 15 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN	4.42 4.59 4.72 5.05 5.76 6.36 7.46 7.50 15.43 18.23 19.56 19.76 20.25 20.95	410 1900 120 200 1000 79 240 290 100 90 160 200 160 96	BJ J J BJ BJ J J J J
23. 24. 25. 26. 27. 28. 29.				

000199

Lab Name: ATAS, INC Contract: 68-W-00-066

Matrix: (soil/water) SOIL Lab Sample ID: 30848.08

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8799.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 14 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.8 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

100-52-7	Benzaldehyde	380	U
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	-2-Chlorophenol	380	T
95-48-7	2-Methylphenol	380	U
108-60-1	2.2'-oxybis(1-Chloropropane)	380	T
98-86-2	Acetophenone	380	T
106-44-5	4-Methylphenol	380	T
621-64-7	N-Nitroso-di-n-propylamine	380	J
67-72-1	Hexachloroethane	380	T
98-95-3	Nitrobenzene	380	T
78-59-1	Isophorone	380	J
88-75-5	2-Nitrophenol	380	J
105-67-9	2,4-Dimethylphenol	380	J
111-91-1	bis(2-Chloroethoxy)methane	380	J
120-83-2	2,4-Dichlorophenol	380	J
91-20-3	Naphthalene	380	J
106-47-8	4-Chloroaniline	380	7
87-68-3	Hexachlorobutadiene	380	J
105-60-2		380	J
59-50-7	4-Chloro-3-methylphenol	380	J
91-57-6	2-Methylnaphthalene	62	
77-47-4	Hexachlorocyclopentadiene	380	J
88-06-2	2.4.6-Trichlorophenol	380	J
95-95-4	2,4,5-Trichlorophenol	970	Ţ
92-52-4	1,1'-Biphenyl	380	7
91-58-7	2-Chloronaphthalene	380	J
88-74-4	2-Nitroaniline	970	7
131-11-3	Dimethylphthalate	380	
606-20-2	_2,6-Dinitrotoluene	380	- τ
208-96-8	Acenaphthylene	380	Ţ
99-09-2	3-Nitroaniline	970	J
83-32-9	Acenaphthene	380	J

Lab Name: ATAS, INC Contract: 68-W-00-066

Matrix: (soil/water) SOIL Lab Sample ID: 30848.08

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8799.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 14 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.8 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

51-28-5	2,4-Dinitrophenol	970	T
100-02-7	4-Nitrophenol	970	T T
132-64-9	Dibenzofuran	380	T
121-14-2	2,4-Dinitrotoluene	380	T T
84-66-2	Diethylphthalate	380	T
86-73-7	Fluorene	380	J
7005-72-3	4-Chlorophenyl-phenylether	380	J
100-01-6	4-Nitroaniline	970	7
534-52-1	4,6-Dinitro-2-methylphenol	970	J
86-30-6	N-Nitrosodiphenylamine (1)	380	J
101-55-3	4-Bromophenyl-phenylether	380	7
118-74-1	Hexachlorobenzene	380	7
	-Atrazine	380	J
87-86-5	Pentachlorophenol	970	T T
85-01-8	Phenanthrene	380	1
120-12-7	Anthracene	380	
86-74-8	Carbazole	380	T
84-74-2	Di-n-butylphthalate	23	
206-44-0	Fluoranthene	380	
129-00-0	Pyrene	380	Ţ
85-68-7	Butylbenzylphthalate	380	Ţ
91-94-1	3,3'-Dichlorobenzidine	380	T
56-55-3	Benzo (a) anthracene	380	-
218-01-9	Chrysene	380	1
117-81-7	_bis(2-Ethylhexyl)phthalate _Di-n-octylphthalate	380	
117-84-0	Di-n-octylphthalate	100	Bu
205-99-2	Benzo(b) fluoranthene	380	
207-08-9	Benzo(k) fluoranthene	380	-
50-32-8	Benzo (a) pyrene	380	
193-39-5	Indeno(1,2,3-cd)pyrene	380	
53-70-3	Dibenz (a, h) anthracene	32	
191-24-2	Benzo(g,h,i)perylene	380	- _U

FGM71

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.08

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: F8799.D

Level: (low/med) LOW

Date Received: 09/13/00

% Moisture: 14

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.8

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 20

EPA SAMPLE NO.

FGM72

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.09

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8789.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 9 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4 Extraction: (Type) SONC

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

100-52-7	Benzaldehyde	360	U
108-95-2	Phenol	360	U
111-44-4	bis(2-Chloroethyl)ether	360	U
95-57-8	2-Chlorophenol	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
98-86-2	Acetophenone	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3		360	U
78-59-1		360	U
	2-Nitrophenol	360	U
105-67-9	_2,4-Dimethylphenol_	360	U
111-91-1	bis (2-Chloroethoxy) methane	360	U
120-83-2	2,4-Dichlorophenol	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
87-68-3	Hexachlorobutadiene	360	U
105-60-2	Caprolactam	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-57-6	2-Methylnanhthalene	360	U
77-47-4	Hexachlorocyclopentadiene 2,4,6-Trichlorophenol	360	U
88-06-2	2.4.6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	910	U
92-52-4	_1,1'-Biphenyl	360	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	910	U
131-11-3	_Dimethylphthalate_	360	U
606-20-2	_2,6-Dinitrotoluene	360	U
208-96-8	_Acenaphthylene	360	U
99-09-2	3-Nitroaniline	910	U
	Acenaphthene	360	Ü

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.09

Lab File ID: F8789.D Sample wt/vol: 30.0 (g/mL) G

Date Received: 09/13/00 Level: (low/med) LOW

% Moisture: 9 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Dilution Factor: 1.0 Injection Volume: 2.0 (uL)

Extraction: (Type) SONC CONCENTRATION UNITS: GPC Cleanup: (Y/N) Y pH: 5.4

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	(ug/L OI ug/kg/ OG/kg	Q
51-28-5	2,4-Dinitrophenol	910	U
100-02-7	4-Nitrophenol	910	U
132-64-9	Dibenzofuran	360	U
121-14-2	_2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
86-73-7	Fluorene	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
	4-Nitroaniline	910	U
534-52-1	4.6-Dinitro-2-methylphenol	910	U
86-30-6	_N-Nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
1912-24-9	Atrazine	360	U
87-86-5	Pentachlorophenol	910	U
85-01-8	Phenanthrene	360	U
	Anthracene	360	U
86-74-8	Carbazole	360	U
	Di-n-butylphthalate	19	J
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a) anthracene	360	U
	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	230	J
117-84-0	_Di-n-octylphthalate	95	BJ
205-99-2	Benzo(b) fluoranthene	360	U
207-08-9	Benzo(k) fluoranthene	360	U
50-32-8	Benzo(a) pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	_Dibenz(a,h)anthracene	360	Ū
191-24-2	Benzo(g,h,i)perylene	360	U
1) Cannot be	seperated from Diphenylamine		

(1) Cannot be seperated from Diphenylamine

FGM72

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.09

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: F8789.D

Level: (low/med) LOW

Date Received: 09/13/00

% Moisture: 9

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 5.4

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found:

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.61	910	В
2.	UNKNOWN	5.08	160	i
~ .	UNKNOWN	5.63	78	
7.	UNKNOWN	5.79	180	_ '
J.	ONIGIONIA	7.49	91	В
0.	UNKNOWN	7.53	150 150	B _i
1 .	UNKNOWN	18.18	130	B
0.	- ONKNOWN	10.10	130	
9				
11.				
12.				
16.				
	-			
21.				-
24				
A 7 1				
30.				

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.10

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8790.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 8 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG

	COMPOUND	(ug/I or ug/kg/ oo/ko	
100-52-7	Benzaldehyde	360	Ü
	Phenol	360	U
111-44-4	bis(2-Chloroethyl)ether_	360	U
95-57-8	2-Chlorophenol	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
98-86-2	Acetophenone	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2.4-Dimethylphenol	360	U
111-91-1	bis(2-Chloroethoxy)methane 2,4-Dichlorophenol	360	U
120-83-2	2,4-Dichlorophenol	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
87-68-3	Hexachlorobutadiene	360	U
105-60-2	Caprolactam	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-57-6	2-Methylnaphthalene Hexachlorocyclopentadiene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	900	U
92-52-4	1,1'-Biphenyl	360	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	900	U
131-11-3	Dimethylphthalate	360	U
606-20-2	2,6-DinitrotolueneAcenaphthylene	360	U
208-96-8	Acenaphthylene	360	U
99-09-2	3-Nitroaniline	900	U
	Acenaphthene	360	Ŭ

Contract: 68-W-00-066 Lab Name: ATAS, INC

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.10

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8790.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 8 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Dilution Factor: 1.0 Injection Volume: 2.0 (uL)

Extraction: (Type) SONC CONCENTRATION UNITS: GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG

CAD NO.	CONFOUND	g/I OI ug/ng/ OO/NO	~
51-28-5	2,4-Dinitrophenol	900	U
100-02-7		900	U
	_Dibenzofuran	360	
121-14-2	2.4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
86-73-7	Fluorene	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
100-01-6	4-Nitroaniline	900	U
534-52-1	4 6-Dinitro-2-methylphenol	900	U
86-30-6	N-Nitrosodiphenylamine (1)	360	U
101-55-3	N-Nitrosodiphenylamine (1)	360	U
118-74-1	Hexachlorobenzene	360	U
1912-24-9	Atrazine	360	U
87-86-5	Pentachlorophenol	900	- U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
	-Carbazole	360	U
	Di-n-butylphthalate	24	J
206-44-0	Fluoranthene	360	U
129-00-0	-Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	
91-94-1	Butylbenzylphthalate	360	U
56-55-3	Benzo(a) anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	290	J
117-84-0	Di-n-octvlphthalate	43	BJ
205-99-2	Benzo (b) fluoranthene	360	U
207-08-9	Benzo(k) fluoranthene	360	U
50-32-8	Benzo (a) pyrene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenz(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U
1) Cannot be	seperated from Diphenylamine		

(1) Cannot be seperated from Diphenylamine

FGM73

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.10

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: F8790.D

Level: (low/med)

LOW

Date Received: 09/13/00

% Moisture: 8

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.1

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 10

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 2. 3. 4. 5. 8017-34-3 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19	UNKNOWN UNKNOWN UNKNOWN UNKNOWN TECHNICAL CHLOROPHENOTHANE UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN		EST. CONC. ====================================	B3 B3 B3 B3 B3 B3 B3 B3 B3 B3 B3 B3 B3 B
26. 27. 28.				

000271

0

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8794.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 17 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5 Extraction: (Type) SONC

CAS NO. COMPOUND CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

100-52-7 Benzaldehyde
111-44-4 bis(2-Chloroethyl)ether
95-57-8 2-Chlorophenol
95-48-7 2-Methylphenol
108-60-1 2,2'-oxybis(1-Chloropropane)
98-86-2 Acetophenone
106-44-5 4-Methylphenol
621-64-7 N-Nitroso-di-n-propylamine
67-72-1 Hexachloroethane
98-95-3 Nitrobenzene
78-59-1 Isophorone
88-75-5 2-Nitrophenol
111-91-1 bis(2-Chloroethoxy)methane
120-83-2 2,4-Dichlorophenol
91-20-3 Naphthalene
106-47-8 4-Chloroaniline
87-68-3 Hexachlorobutadiene 400 U 400 U 400 U U 400 400 U 400 U 400 U 400 U 400 U 400 U 400 U 400 U 400 U 400 U 400 U 400 U 400 U __87-68-3 _Hexachlorobutadiene__ __105-60-2 _Caprolactam __59-50-7 _4-Chloro-3-methyll 400 U 400 Ū 400 U U 400 400 U 400 U 400 U 1000 U 400 U 400 U 1000 U 400 U 400 U 400 U 1000 U 400

Lab Name: ATAS, INC Contract: 68-W-00-066

Matrix: (soil/water) SOIL Lab Sample ID: 30848.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8794.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 17 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG (

51-28-5		1000	U_
100-02-7		1000	U
132-64-9	Dibenzofuran	400	U
121-14-2		400	U
84-66-2	Diethylphthalate	400	U
86-73-7		400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenvlamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
1912-24-9	-Atrazine	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	400	
120-12-7	Anthracene	400	
86-74-8	Carbazole	400	
84-74-2	_Di-n-butylphthalate	21	J
206-44-0	Fluoranthene	400	_
	Pyrene	400	_ U
85-68-7	Butvlbenzvlphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	
56-55-3	Benzo (a) anthracene	400	U
218-01-9	Chrysene	400	_
117-81-7	bis(2-Ethylhexyl)phthalate	400	_ U
117-84-0	Di-n-octvlphthalate	120	BJ
205-99-2	Benzo(b) fluoranthene	400	- U
207-08-9	_Benzo(b)fluoranthene	400	
50-32-8	Benzo(a)pyrene	400	
193-39-5	Indeno(1,2,3-cd)pyrene	400	- u
53-70-3	Dibenz (a, h) anthracene	400	- <u>U</u>
191-24-2	Benzo(g,h,i)perylene	400	- <u>u</u> -
1) Cannot be	seperated from Diphenylamine		-'

(1) Cannot be seperated from Diphenylamine

pH: 5.5

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FGM74

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.11

Sample wt/vol:

30.0 (g/mL) G Lab File ID: F8794.D

Level: (low/med) LOW

Date Received: 09/13/00

% Moisture: 17 decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

(Y/N) Y

Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

Extraction: (Type) SONC

Number TICs found: 12

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 2. 3. 4. 55. 66. 77. 88. 99. 100. 111. 122. 133. 144. 155. 166. 177. 188. 199. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 330.		4.42 4.59 4.71 5.05 5.59 5.75 7.46 7.49 8.31 17.17 17.43 18.13	210 2100 320 100 140 510 200 210 87 93 140 95	Bo

Lab Name: ATAS, INC Contract: 68-W-00-066

Matrix: (soil/water) SOIL Lab Sample ID: 30848.12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8795.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 7 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 4.1 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG O

	SHE COND	(ug/II or ug/Ng/ og/Ng	×
100-52-7 Be	enzaldehyde	350	U
108-95-2 Pl	nenol	350	U
111-44-4 b:	is(2-Chloroethyl)ether	350	U
95-57-8 2	-Chlorophenol	350	U
95-48-7 2	-Methylphenol	350	U
108-60-1 2	,2'-oxybis(1-Chloropropane)_ cetophenone	350	U
98-86-2 A	cetophenone	350	U
106-44-5 4	-Methylphenol	350	U
621-64-7 N	-Methylphenol -Nitroso-di-n-propylamine	350	U
67-72-1 He	exachloroethane	350	U
98-95-3 N	itrobenzene	350	U
78-59-1 I	sophorone	350	U
88-75-5 2	Nitrophenol ,4-Dimethylphenol	350	U
105-67-9 2	,4-Dimethylphenol	350	U
111-91-1 b:	is (2-Chloroethoxy) methane	350	U
120-83-2 2	,4-Dichlorophenol	350	U
91-20-3 Na	aphthalene	350	U
106-47-8 4	-Chloroaniline	350	U
87-68-3 He	exachlorobutadiene	350	U
105-60-2 Ca	aprolactam -Chloro-3-methylphenol -Methylnaphthalene	350	U
59-50-7 4	-Chloro-3-methylphenol	350	U
91-57-6 2	-Methylnaphthalene	350	U
77-47-4 He	exachlorocyclopentadiene	350	U
88-06-2 2	,4,6-Trichlorophenol	350	U
95-95-4 2	4 5-Trichlorophenol	890	U
92-52-4 1	,1'-Biphenyl -Chloronaphthalene -Nitroaniline	350	U
91-58-7 2	-Chloronaphthalene	350	U
88-74-4 2	-Nitroaniline	890	U
131-11-3 D	imetnyiphthalate	350	U
606-20-2 2	,6-Dinitrotoluene	350	U
208-96-8 A	cenaphthylene	350	U
99-09-2 3	-Nitroaniline	890	U
83-32-9 A	cenaphthene	350	U

Lab Name: ATAS, INC

Contract: 68-W-00-066 FGM75

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8795.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 7 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 4.1 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

51-28-5	2,4-Dinitrophenol	890	U
100-02-7	4-Nitrophenol	890	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
86-73-7	Fluorene	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
100-01-6	4-Nitroaniline	890	U
534-52-1	4,6-Dinitro-2-methylphenol	890	U
86-30-6	N-Nitrosodiphenvlamine (1)	350	U
101-55-3	_4-Bromophenyl-phenylether Hexachlorobenzene	350	U
118-74-1	Hexachlorobenzene -	350	U
1912-24-9	Atrazine	350	U
87-86-5	PentachlorophenolPhenanthrene	890	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
	-Carbazole	350	U
	Di-n-butylphthalate	350	U
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene Butylbenzylphthalate 3,3'-Dichlorobenzidine	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3.3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a) anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	350	U
117-84-0	Di-n-octvlphthalate	64	BJ
205-99-2	_Benzo(b) fluoranthene	350	U
207-08-9	Benzo(k) fluoranthene	350	U
50-32-8	_Benzo(a)pyrene	350	U
193-39-5	_Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenz (a, h) anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FGM75

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.12

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: F8795.D

Level: (low/med) LOW

Date Received: 09/13/00

% Moisture: 7 decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 4.1

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 9

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN			Bi Bi Bi
22. 23. 24. 25. 26.				
26. 27. 28.				

Lab Name: ATAS, INC Contract: 68-W-00-066

Matrix: (soil/water) SOIL Lab Sample ID: 30848.13

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E8410.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 12 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

100-52-7	Benzaldehyde	380	U
108-95-2	Phenol	380	-
111-44-4	his (2-Chloroethyllether	380	U
95-57-8	-2-Chlorophenol	380	U
95-48-7	_2-Chlorophenol	380	U
108-60-1	2,2'-oxybis(1-Chloropropane)	380	U
98-86-2	Acetophenone	380	ט
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	ט
98-95-3	Nitrobenzene	380	ט
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
105-60-2		380	ט
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Heyachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	940	U
92-52-4	1,1'-Biphenyl	380	U
91-58-7	_2,4,6-Trichlorophenol _2,4,5-Trichlorophenol _1,1'-Biphenyl _2-Chloronaphthalene	380	T.
88-74-4	2-Nitroaniline	940	T T
131-11-3	Dimethylphthalate	380	U
606-20-2	2,6-Dinitrotoluene	380	U
208-96-8	_Acenaphthylene	380	T T
99-09-2	3-Nitroaniline	940	U
83-32-9	Acenaphthene	380	- τ

Lab Name: ATAS, INC Contract: 68-W-00-066

Matrix: (soil/water) SOIL Lab Sample ID: 30848.13

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E8410.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 12 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

51-28-5	2,4-Dinitrophenol	940	U
	4-Nitrophenol	940	
132-64-9		380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2		380	U
86-73-7		380	U
7005-72-3	4-Chlorophenyl-phenylether_	380	U
100-01-6	4-Nitroaniline	940	"ט
	4,6-Dinitro-2-methylphenol	940	
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
1912-24-9	Atrazine	380	U
87-86-5	_Pentachlorophenol	940	
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	20	BJ
206-44-0	Fluoranthene	380	_ U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	
56-55-3	Benzo(a)anthracene	380	
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	380	ט די
117-84-0	Di-n-octylphthalate	86	BJ
205-99-2	Benzo(b) fluoranthene	380	_ L
207-08-9	Benzo (k) fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Benzo(a) pyrene Indeno(1,2,3-cd) pyrene	380	U
53-70-3	Dibenz(a,n)anthracene	380	_ U
191-24-2	Benzo(g,h,i)perylene	380	U
1) Cannot be	seperated from Diphenylamine		

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FGM76

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.13

Sample wt/vol:

30.0 (g/mL) G

Lab File ID:

E8410.D

Level:

(low/med) LOW Date Received: 09/13/00

% Moisture: 12

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 5.3

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 14

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		4.29 4.46 4.59 4.91 5.15 5.62 7.34 7.37 15.02 15.58 16.32 16.79 17.31 19.19	180 2000 280 98 93 300 110 160 80 83 84 110 130 96	B3 B3 B3 B3 B3 B3 B3 B3 B3 B3 B3 B3 B3 B

SDG No.: FGM63

Lab Name: ATAS, INC Contract: 68-W-00-066

Matrix: (soil/water) SOIL Lab Sample ID: 30848.14

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E8411.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 12 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	(ug/L OI ug/kg/ OG/kg	Q
100-52-7 E	Benzaldehyde	380	U
	Phenol	380	U
111-44-4	ois(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2-Methylphenol 2,2'-oxybis(1-Chloropropane)_	380	U
98-86-21 7	Acetophenone	380	U
106-44-5	-Methylphenol	380	U
621-64-7 N	N-Nitroso-di-n-propylamine	380	U
67-72-1 I	Hexachloroethane	380	U
98-95-3	Vitrobenzene	380	U
78-59-1	Sophorone	380	U
88-75-5 2	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1 k	ois(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
91-20-3	Naphthalene	380	U
106-47-8	1-Chloroaniline	380	U
87-68-3 T	Hexachlorobutadiene	380	U
105-60-2	Caprolactam	380	U
59-50-7	1-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4 I	Hexachlorocyclopentadiene	380	U
88-06-21 2	2.4.6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol 1,1'-Biphenyl 2-Chloronaphthalene	940	U
92-52-4	1,1'-Biphenyl	380	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	940	U
131-11-3 T	Dimethylphthalate	380	U
606-20-2	2.6-Dinitrotoluene	380	U
208-96-8	Acenaphthylene	380	U
99-09-2	3-Nitroaniline	940	U
83-32-9	Acenaphthene	380	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

FGM77

Contract: 68-W-00-066 Lab Name: ATAS, INC

Case No.: 28507 SAS No.: SDG No.: FGM63 Lab Code: ATAS

Lab Sample ID: 30848.14 Matrix: (soil/water) SOIL

Lab File ID: E8411.D Sample wt/vol: 30.0 (g/mL) G

Date Received: 09/13/00 Level: (low/med) LOW

Date Extracted: 09/15/00 decanted: (Y/N) N % Moisture: 12

Date Analyzed: 09/18/00 Concentrated Extract Volume: 500 (uL)

Dilution Factor: 1.0 Injection Volume: 2.0 (uL)

Extraction: (Type) SONC CONCENTRATION UNITS: GPC Cleanup: (Y/N) Y pH: 5.5

(ug/L or ug/Kg) UG/KG Q CAS NO. COMPOUND

CAB NO.	COMPOUND	(49, 4 04 49, 49, 40, 40	~
51-28-5	2,4-Dinitrophenol	940	ן ע
100-02-7	4-Nitrophenol	940	
132-64-9	Dibenzofuran	380	<u></u>
121-14-2	2,4-Dinitrotoluene	380	บ
84-66-2		380	<u></u> ט
86-73-7	Fluorene	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	
100-01-6	4-Nitroaniline	940	<u>"</u>
534-52-1	4,6-Dinitro-2-methylphenol	940	ט
86-30-6	_N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	ש
1912-24-9	Atrazine	380	U
87-86-5	Pentachlorophenol	940	U
85-01-8	Phenanthrene	380	ַ ט
	Anthracene	380	U
	-Carbazole	380	U
84-74-2	Di-n-butylphthalate	380	บ
206-44-0	Fluoranthene	380	UU
129-00-0		380	U
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	บ
56-55-3	Benzo(a) anthracene	380	U
218-01-9	Chrysene	380	บ
117-81-7	bis(2-Ethylnexyl)phthalate	380	<u> </u>
117-84-0	Di-n-octylphthalate	75	BJ_
205-99-2	Benzo (b) fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo (a) pyrene	380	<u> </u>
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
	Dibenz (a, h) anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U
71 Connot ho	generated from Dinhenvlamine		

1G SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

FGM77

Lab Name: ATAS, INC

Lab Code: ATAS

Contract: 68-W-00-066

SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.14

Sample wt/vol:

30.0 (g/mL) G

Case No.: 28507

Lab File ID: E8411.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 12

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 5.5

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 10

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	UNKNOWN	4.29	200	J
1:	UNKNOWN	4.46	1800	BJ
3	UNKNOWN	4.59	250	J
, . .	UNKNOWN	4.91	88	J
5	UNKNOWN	5.62	380	_J
, .	UNKNOWN	7.34	99	BJ
į <i>'</i> .	UNKNOWN	7.37	110	BJ
	UNKNOWN	15.43	95	J
9	UNKNOWN	17.31	120	BJ
9. 10. 11.	UNKNOWN	19.19	99	J
11.				
1 14.				
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15. 16.				
17.				
18.				
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1 20.				
1 41.				
1 44.				
1 43.				
1 43.				
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EPA SAMPLE NO.

Lab Name: ATAS, INC Contract: 68-W-00-066 FGM78

Case No.: 28507

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.15

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: E8412.D

Level: (low/med)

Date Received: 09/13/00

% Moisture: 5

Lab Code: ATAS

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500

Date Analyzed: 09/19/00

Injection Volume:

CAS NO.

2.0 (uL)

LOW

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 4.1

(uL)

Extraction: (Type) SONC

CONCENTRATION UNITS:

COMPOUND (ug/L or ug/Kg) UG/KG

SAS No.:

100-52-7	Benzaldehyde	350	U
	Phenol	350	·
	bis(2-Chloroethyl)ether	350	·
95-57-8	2-Chlorophenol	350	Ŭ——Ŭ—
95-48-7	2-Methylphenol	350	Ŭ
108-60-1	2.2'-oxybis(1-Chloropropage)	350	Ŭ
98-86-21	Acetophenone	350	Ŭ
106-44-5	4-Methylphenol	350	Ū U
621-64-7	N-Nitroso-di-n-propylamine	350	- -
67-72-1	Hexachloroethane	350	Ŭ
98-95-3	Nitrobenzene	350	·
78-59-1	Isophorone	350	- U
88-75-5	2-Nitrophenol	350	<u> </u>
105-67-9	2,4-Dimethylphenol bis(2-Chloroethoxy)methane	350	U U
111-91-1	bis(2-Chloroethoxy) methane	350	.
120-83-2	2,4-Dichlorophenol	350	יט די
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	ט די
87-68-3	Hexachlorobutadiene	350	ี
105-60-2	Caprolactam	350	" ซ
59-50-7	4-Chloro-3-methylphenol 2-Methylnaphthalene	350	ע די
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	ט ט
88-06-2	Hexachlorocyclopentadiene	350	<u>"</u> ט
95-95-4	2,4,5-Trichlorophenol	870	<u>י</u> ס
92-52-4	1.1'-Biphenvl	350	<u>"</u>
91-58-7	2-Chloronaphthalene	350	ָּע דיייייייייייייייייייייייייייייייייייי
88-74-4	2-Nitroaniline	870	U
131-11-3	Dimethylphthalate	350	U
606-20-2	2,6-Dinitrotoluene	350	U
208-96-8	Acenaphthylene	350	U
99-09-2	3-Nitroaniline	870	U
83-32-9	Acenaphthene	350	U

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.15

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E8412.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 5 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 4.1 Extraction: (Type) SONC

CONCENTRATION UNITS:
CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

51-28-5	2,4-Dinitrophenol	870	_ U
100-02-7	4-Nitrophenol	870	<u> </u>
132-64-9	Dibenzofuran	350	Ŭ
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
86-73-7	Fluorene	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
100-01-6	4-Nitroaniline	870	ָ <u>"</u>
534-52-1	4,6-Dinitro-2-methylphenol	870	ט
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4,6-Dinitro-2-methylphenol N-Nitrosodiphenylamine (1) 4-Bromophenyl-phenylether	350	U
118-74-1		350	ט
1912-24-9	Atrazine	350	ט ט
87-86-5	Pentachlorophenol	870	<u>"</u>
85-01-8	Phenanthrene	350	<u>י</u>
120-12-7		350	ט
	Carbazole	350	"ט
84-74-2	Di-n-butylphthalate	350	ט
206-44-0	Fluoranthene	350	ט
129-00-0	Pyrene	350	"ט
85-68-7	Butylbenzylphthalate 3,3'-Dichlorobenzidine	350	<u>י</u>
91-94-1	3,37-Dichlorobenzidine	350	ט
56-55-3	Benzo(a) anthracene	350	U
218-01-9	Chrysene	350	<u>י</u>
117-81-7	bis(2-Ethylhexyl)phthalate	350	ט
117-84-0	Di-n-octvlphthalate	61	BJ
205-99-2	Benzo (b) fluoranthene	350	-\ U
207-08-9	Benzo(k) fluoranthene	350	ט
50-32-8	Benzo(a)pyrene	350	ט
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenz(a,h)anthracene	350	- J U
191-24-2	Benzo(g,h,i)pervlene	350	-\ -
(1) Cannot be	seperated from Diphenylamine		_1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ATAS, INC

Contract: 68-W-00-066

FGM78

Lab Code: ATAS

Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.15

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: E8412.D

Level:

(low/med) LOW

Date Received: 09/13/00

% Moisture: 5

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/19/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 4.1

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 12

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
			EDI. CONC.	
	UNKNOWN	4.29	97	J
1	UNKNOWN	4.46	1400	BJ
2	UNKNOWN			
,		4.59	94	J
1 -	UNKNOWN	4.92	300	J
, J.	UNKNOWN	5.62	350	J
1 0	UNKNOWN	7.33	140	BJ
7	UNKNOWN	7.37	180	BJ
8. 3424-82-6	O,P'-DDE	14.00	170	JN
9. 50-29-3	CHLOROPHENOTHANE	14.93	700	JN
10	UNKNOWN	15.59	76	J J
	UNKNOWN	17.31	99	ВЈ
1 444	UNKNOWN	18.16	72	J
1 4 4 6				
14				
15.		<u> </u>		
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EPA SAMPLE NO.

Lab Name: ATAS, INC Contract: 68-W-00-066

FGM81

Lab Code: ATAS Ca

Case No.: 28507

SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.18

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: E8415.D

Level: (1

(low/med) LOW

Date Received: 09/13/00

% Moisture: 23

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500

Date Analyzed: 09/19/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 7.3

Extraction: (Type) SONC

CONCENTRATION UNITS:

CAS NO. COMPOUND

(ug/L or ug/Kg) UG/KG Q

100-52-7	Benzaldehyde	53	J
108-95-2	Phenol	430	ַ " "
111-44-4	bis(2-Chloroethyl)ether	430	
95-57-8	2-Chlorophenol	430	
95-48-7	2-Methylphenol	430	ַ '
108-60-1	2.2'-oxybis(1-Chloropropane)	430	ַ <u>'</u>
98-86-2	Acetophenone	430	"ט
106-44-5	4-Methylphenol	430	ט
621-64-7	N-Nitroso-di-n-propylamine	430	U
67-72-1	Hexachloroethane	430	U
	Nitrobenzene	430	ע <u> </u>
78-59-1	Isophorone	430	U
88-75-5	2-Nitrophenol	430	<u>ע</u>
105-67-9	2,4-Dimethylphenol	430	<u>"</u>
111-91-1)	bis(2-Chloroethoxy)methane	430	ַ ע
120-83-2	2,4-Dichlorophenol	430	U
91-20-3	Naphthalene	430	U
106-47-8	4-Chloroaniline	430	ט "
87-68-3	Hexachlorobutadiene	430	U
105-60-2	Caprolactam	430	U
59-50-71	4-Chloro-3-methylphenol	430	ַ ע
91-57-6	2-Methylnaphthalene	430	ַ <u>"</u>
77-47-4	Hexachlorocyclopentadiene	430	ַ ע
88-06-21	2.4.6-Trichlorophenol	430	U
95-95-4	2,4,5-Trichlorophenol	1100	U
92-52-4	1,1'-Biphenyl 2-Chloronaphthalene	430	ַ ט
91-58-7	2-Chloronaphthalene	430	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	430	U
606-20-2	2.6-Dinitrotoluene	430	ַ ט
208-96-8	Acenaphthylene	430	ַ ט
99-09-2	3-Nitroaniline	1100	ַ ע
83-32-9	Acenaphthene	430	"ט"

Lab Name: ATAS, INC Contract: 68-W-00-066

Case No.: 28507

30.0 (g/mL) G

SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.18

Lab File ID: E8415.D

Level: (low/med) LOW

CAS NO.

Date Received: 09/13/00

% Moisture: 23 d

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/19/00

Injection Volume:

Lab Code: ATAS

Sample wt/vol:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

COMPOUND

pH: 7.3

Extraction: (Type) SONC

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG (

0.10 110.		(ug/1 or ug/ng/ oo/no	¥
51-28-5	2,4-Dinitrophenol	1100	<u></u>
100-02-7	4-Nitrophenol	1100	
132-64-9	Dibenzofuran	430	U
121-14-2	2,4-Dinitrotoluene	430	
84-66-2	Diethylphthalate	430	
86-73-7	Fluorene	430	
7005-72-3	4-Chlorophenyl-phenylether	430	U_
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	บ
86-30-6	N-Nitrosodiphenylamine (1)	430	บ
101-55-3	4-Bromophenyl-phenylether	430	บ
118-74-1	Hexachlorobenzene	430	บ
1912-24-9	Atrazine	430	ับ
87-86-5	Pentachlorophenol	1100	บ
85-01-8	Phenanthrene	430	บ
120-12-7	Anthracene	430	<u> </u>
86-74-8	Carbazole	430	บ
84-74-2	Di-n-butylphthalate	430	U
206-44-0	Fluoranthene	430	U
129-00-0	Pyrene	430	U
85-68-7	Butylbenzylphthalate	430	
91-94-1	3,3'-Dichlorobenzidine	430	บ
56-55-3	Benzo(a) anthracene	430	U
218-01-9	Chrysene	430	ט
117-81-7	bis(2-Ethylhexyl)phthalate	430	<u></u> ד
117-84-0	Di-n-octvlphthalate	110	BJ
205-99-2	Benzo (b) fluoranthene	430	บ
207-08-9	Benzo(k) fluoranthene	430	
50-32-8	Benzo(a) pyrene	430	
193-39-5	Indeno(1,2,3-cd)pyrene	430	<u>"</u>
53-70-3	Dibenz(a.h)anthracene	430	บ
191-24-2	Benzo(g,h,i)perylene	430	
(1) Cannot be	seperated from Diphenylamine		

1G SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FGM81

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.18

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: E8415.D

Level:

(low/med) LOW

Date Received: 09/13/00

% Moisture: 23

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500

(uL)

Date Analyzed: 09/19/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 7.3

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 25

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
l	UNKNOWN	4.29	920	J
2	UNKNOWN	4.46	1400	BJ
3	UNKNOWN	4.91	660	J
1 4.	UNKNOWN	5.19	110	J
5.	UNKNOWN	5.64	3400	J
6.	UNKNOWN	7.34	160	BJ
7.	UNKNOWN	7.37	150	ВJ
8. 104-54-1	2-PROPEN-1-OL, 3-PHENYL-	8.05	120	JN
9. 57-10-3	HEXADECANOIC ACID	12.48	110	JN
10	UNKNOWN	15.59	840	J
	UNKNOWN	16.04	130	J
, <u>1</u> 2.	UNKNOWN	16.08	420	BJ
13.	UNKNOWN	16.36	2200	J
13. 14. 480-40-0	CHRYSIN	16.55	500	JN
15.	UNKNOWN	16.68	290	J
1 70.	UNKNOWN	16.74	400	J
17.	UNKNOWN	16.79	200	J
17. 18. 87620-04-0	5-METHOXY-3,7-DIHYDROXYFLAVA	16.85	870	JN
19	UNKNOWN	16.94	210	J
20.	UNKNOWN	17.07	110	J
21.	UNKNOWN	17.13	140	J
20. 21. 22.	UNKNOWN	17.31	180	BJ
23.	UNKNOWN	17.75	100	J
	UNKNOWN	18.28	120	BJ
1 43.	UNKNOWN	19.56	95	J
1 40.				
1 41.				
20.				
29.				
30				l

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.19

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E8416.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 16 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Extraction: (Type) SONC

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG (

100-52-7	Benzaldehyde	390	Ū
108-95-2	Phenol	390	ַ
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	<u> </u>
95-48-7	2-Methylphenol	390	
108-60-1	2,2'-oxybis(1-Chloropropane)	390	<u></u>
98-86-2	Acetophenone	390	U
106-44-5	4-Methylphenol	390	<u>"</u>
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9		390	
111-91-1	bis(2-Chloroethoxy)methane	390	Ŭ
120-83-2	2,4-Dichlorophenol	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
	Hexachlorobutadiene	390	U
105-60-2	Caprolactam	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	990	U
92-52-4	1,1'-Biphenyl	390	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	990	U
131-11-3	_Dimethylphthalate	390	U
606-20-2	2,6-Dinitrotoluene	390	ַ ע
208-96-8	Acenaphthylene	390	U
99-09-2	3-Nitroaniline	990	U
83-32-9	_Acenaphthene	390	UU

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.19

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E8416.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 16 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	(ug/L or ug/kg) og/kg	Q
51-28-5	2,4-Dinitrophenol	990	<u> </u>
100-02-7	4-Nitrophenol	990	Ū
132-64-9	Dibenzofuran	390	
	2,4-Dinitrotoluene	390	
84-66-2	Diethylphthalate	390	
86-73-7	Fluorene	390	U U
7005-72-3	4-Chlorophenyl-phenylether	390	Ū
100-01-6	4-Nitroaniline	990	U
534-52-1	4,6-Dinitro-2-methylphenol	990	Ū
86-30-6	N-Nitrosodiphenylamine (1)	390	<u>"</u>
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	
1912-24-9	Atrazine	390	U
87-86-5	Pentachlorophenol	990	บ
85-01-8	Phenanthrene	390	<u>י</u>
120-12-7	Anthracene	390	Ū
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	
129-00-0	Pyrene	390	บ
85-68-7	Butylbenzylphthalate	390	<u> </u>
91-94-1	3,3'-Dichlorobenzidine	390	<u></u> ט
56-55-3	Benzo (a) anthracene	390	บ
218-01-9	Chrysene	390	บ
117-81-7	_bis(2-Ethylhexyl)phthalate _Di-n-octylphthalate	390	บ
117-84-0	Di-n-octylphthalate	390	
1 205-99-2	Benzo(b)fluoranthene	390	
207-08-9	Benzo(k) fluoranthene	390	U
50-32-8	Benzo (a) pyrene	390	บ
193-39-5	Indeno(1.2.3-cd)pyrene	390	U
53-70-3	Dibenz(a,h)anthracene	390	บ
191-24-2	Benzo(g,h,i)perylene	390	U
(1) Cannot be	seperated from Diphenylamine		

1G

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FGM82

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.19

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: E8416.D

Level: (low/

(low/med) LOW

Date Received: 09/13/00

% Moisture: 16

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500

Date Analyzed: 09/19/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 7.1

(uL)

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 16

		I		——————————————————————————————————————
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	0
		======	=========	E====
1	UNKNOWN	4.29	930	ர
2	UNKNOWN	4.45	1200	BJ
3.	UNKNOWN	4.92	420	J
1 4.	UNKNOWN	5.64	2400	J
5.	UNKNOWN	5.73	120	J
5.	UNKNOWN	7.33	130	BJ
7	UNKNOWN	7.37	120	BJ
1 0.	UNKNOWN	15.33	83	J
9.	UNKNOWN	16.78	110	J
9.	UNKNOWN	17.06	110	J J
	UNKNOWN	17.99	120	J
12.	UNKNOWN	19.37	110	J
12. 13. 15547-89-4	2-(3-METHOXYPHENYL) CYCLOHEXA	19.55	230	JN
14. 15.	UNKNOWN	19.75	95	J
15.	UNKNOWN	20.06	170	J
	UNKNOWN	21.28	110	J
17. 18. 19.				
18.				
1 20.				
44.	1			
		l ———		
, 23.				
,				
27.				
30				

Lab Name: ATAS, INC Contract: 68-W-00-066

Case No.: 28507

Lab Code: ATAS

SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.20

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E8417.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 15 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

	COMPOUND	(ug/II OI ug/kg) og/kg	Q
100-52-7	Benzaldehyde	390	Ū
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	
95-48-7	2-Methylphenol	390	
108-60-1	2,2'-oxybis(1-Chloropropane)_ Acetophenone	390	U
98-86-2	Acetophenone	390	บ
106-44-5	4-Methylphenol	390	<u>י</u>
621-64-7	N-Nitroso-di-n-propylamine	390	<u>ט</u>
67-72-1	Hexachloroethane	390	
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	.390	
88-75-5	2-Nitrophenol	390	<u>"</u>
105-67-9	2,4-Dimethylphenol	390	U
1 111-91-11	bis(2-Chloroethoxy)methane	390	
120-83-2	2,4-Dichlorophenol	390	
91-20-3	Naphthalene	390	บ
106-47-8	4-Chloroaniline	390	บ
87-68-3	Hexachlorobutadiene	390	
105-60-2	Caprolactam 4-Chloro-3-methylphenol 2-Methylnaphthalene	390	U
59-50-7	4-Chloro-3-methylphenol	390	บ
91-57-6	2-Methylnaphthalene	390	U
1 77-47-41	Hexacniorocyclopentagiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	บ
95-95-4	2.4.5-Trichlorophenol	980	U
92-52-4	1,1'-Biphenyl	390	U
1 91-59-71	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline Dimethylphthalate	980	U
131-11-3	Dimethylphthalate	390	U
606-20-2	2,6-Dinitrotoluene	390	บ
208-96-8	Acenaphthylene3-Nitroaniline	390	U
99-09-2	3-Nitroaniline	980	U
83-32-9	Acenaphthene	390	U

SAS No.:

SDG No.: FGM63

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

FGM83

Lab Name: ATAS, INC

Contract: 68-W-00-066

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.20

Sample wt/vol:

Lab Code: ATAS

30.0 (g/mL) G

Case No.: 28507

Lab File ID: E8417.D

Level:

(low/med) LOW

Date Received: 09/13/00

% Moisture: 15

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

CAS NO. COMPOUND

pH: 7.5

Extraction: (Type) SONC

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

		(15, 1 1 15, 15, 11, 11	~
51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol	980	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	<u></u>
84-66-2	Diethylphthalate	390	<u></u>
86-73-7	Fluorene	390	Ū
7005-72-3	4-Chlorophenyl-phenylether	390	<u>ט</u>
100-01-6	4-Nitroaniline	980	<u>י</u>
534-52-1	4,6-Dinitro-2-methylphenol	980	ט
86-30-6	N-Nitrosodiphenylamine (1)	390	<u>ט</u>
101-55-3	4-Bromophenyl-phenylether	390	ן ט
118-74-1	4-Bromophenyl-phenylether Hexachlorobenzene	390	
1912-24-9	Atrazine	390	ט ו
87-86-5	_Pentachlorophenol	980	ַ ט
85-01-8	Phenanthrene	390	ַ ַ ע
	Anthracene	390	ַ <u></u>
	Carbazole	390	ַ ַ ע
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	ט
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	บ
91-94-1	3,3'-Dichlorobenzidine	390	ַ
56-55-3	Benzo (a) anthracene	390	<u>"</u>
218-01-9	Chrysene	390	U
117-81-7	hig (2-Fthy hexy) hhthalate	390	บ
117-84-0	Di-n-octylphthalate	77	BJ
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k) fluoranthene	390	ַ
50-32-8	Benzo (a) pyrene	390	<u>"</u>
193-39-5	Indeno(1,2,3-cd)pyrene	390	บ
53-70-3	Dibenz(a.h)anthracene	390	U
191-24-2	Benzo(q,h,i)perylene	390	ַ ַ ַ ַ ַ ַ ַ ַ ַ ַ ַ ַ ַ
(1) Cannot be	seperated from Diphenylamine		

EPA SAMPLE NO.

1G SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FGM83 Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.20

Sample wt/vol: 30.0 (g/mL) GLab File ID: E8417.D

Level: (low/med) Date Received: 09/13/00 LOW

% Moisture: 15 Date Extracted: 09/15/00 decanted: (Y/N) N

Concentrated Extract Volume: 500 Date Analyzed: 09/19/00 (uL)

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: Extraction: (Type) SONC (Y/N) YpH: 7.5

> CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 10

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
CAS NOMBER	COMPOUND NAME	K1	ESI. CONC.	_
1	UNKNOWN	4.29	1000	J
1	UNKNOWN	4.46	1200	BJ
2	UNKNOWN	4.93	440	J
, ,,,	UNKNOWN	5.64	2200	J
4	UNKNOWN	5.73	110	J
5	UNKNOWN	7.34	100	ВJ
,	UNKNOWN	7.37	140	BJ
	UNKNOWN	16.79	88	J
, .	UNKNOWN	17.31	110	BJ
1).	UNKNOWN	20.35	110	J
; <u> </u>		20.35	110	١
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Lab Name: ATAS, INC Contract: 68-W-00-066

Case No.: 28507

Lab Code: ATAS

SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.21

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E8418.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 16 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5 Extraction: (Type) SONC CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

and no.	COMPOUND	(ug/ii or ug/kg/ os/kg	¥
100-52-7	Benzaldehyde	390	Ū
108-95-2	Phenol	390	
111-44-4	bis(2-Chloroethyl)ether	390	
95-57-8	2-Chlorophenol	390	
95-48-7	2-Methylphenol	390	Ū
108-60-1	_2,2'-oxybis(1-Chloropropane)	390	บ
98-86-2	Acetophenone	390	<u>ט</u>
106-44-5	4-Methylphenol	390	บ
621-64-7	N-Nitroso-di-n-propylamine	390	<u> </u>
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	<u>ט</u>
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	
120-83-2	2,4-Dichlorophenol	390	U
91-20-3	Naphthalene	390	บ
106-47-8	4-Chloroaniline	390	
87-68-3	Hexachlorobutadiene	390	บ
105-60-2	Caprolactam 4-Chloro-3-methylphenol	390	บ
59-50-7	4-Chloro-3-methylphenol	390	<u>"</u>
JT-5/-6	2-Metnyinaphthaiene	390	
77-47-4	Hexachlorocyclopentadiene	390	ַ
88-06-2	2,4,6-Trichlorophenol	390	บ
95-95-4	2,4,5-Trichlorophenol	990	U
92-52-4	_1,1'-Biphenyl	390	<u> </u>
91-58-7	2-Chloronaphthalene	390	ַ ַ ע
88-74-4	2-Nitroaniline	990	U
131-11-3	Dimethylphthalate	390	<u> </u>
606-20-2	2,6-Dinitrotoluene	390	<u>"</u>
208-96-8	_Acenaphthylene	390	บ
99-09-2	_3-Nitroaniline	990	ַ
83-32-9	_Acenaphthene	390	U

Contract: 68-W-00-066 Lab Name: ATAS, INC

Lab Code: ATAS Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.21

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: E8418.D

Level: (low/med) LOW

Date Received: 09/13/00

% Moisture: 16 decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

Extraction: (Type) SONC

-	<u>-</u>	CONCENTRATION UNITS:	
CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	990	Ū
100-02-7	4-Nitrophenol	990	บ
132-64-9	Dibenzofuran	390	บ
121-14-2	2,4-Dinitrotoluene	390	<u></u> ט
84-66-2	Diethylphthalate	390	
	Fluorene	390	
7005-72-3	4-Chlorophenyl-phenylether	390	U
100-01-6	4-Nitroaniline	990	U
534-52-1	4,6-Dinitro-2-methylphenol	990	U
86-30-6	N-Nitrosodiphenylamine (1) 4-Bromophenyl-phenylether Hexachlorobenzene Atrazine Pentachlorophenol	390	ש
101-55-3	4-Bromophenyl-phenylether	390	บ
118-74-1	Hexachlorobenzene	390	<u>"</u>
1912-24-9	Atrazine	390	U
1		990	U
85-01-8	Phenanthrene	390	<u>"</u> "
	Anthracene	390	U
	Carbazole	390	U
84-74-2	Di-n-butylphthalate	390	U
	Fluoranthene	390	ַ ָ ע
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	ש
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a) anthracene	390	<u> </u>
218-01-9	Chrysene	390	U
117-81-7	_bis(2-Ethylhexyl)phthalate_ _Di-n-octylphthalate_ _Benzo(b)fluoranthene _Benzo(k)fluoranthene	390	U
117-84-0	_Di-n-octylphthalate	83	BJ
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	<u>"</u> "
1 30-34-0	i belizo(a)bytelle	390	<u>U</u>
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenz(a,h)anthracene	390	ַ
191-24-2	Benzo(g,h,i)perylene	390	
(1) Cannot be	seperated from Diphenylamine		

1G VOLATILE ORGANICS

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ATAS, INC Contract: 68-W-00-066

FGM84

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.21

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E8418.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 16 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5 Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 8

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 2. 3. 4. 5.	UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN	4.29 4.45 4.91 5.64 7.34	640 1400 310 2300 110 120	J BJ J BJ BJ
7. 57-10-3 8. 3648-21-3 9.	HEXADECANOIC ACID 1,2-BENZENEDICARBOXYLIC ACID	12.49	100 120	JN JN
11. 12.				
15. 16. 17.				
19.				
21. 22. 23. 24.				
26. 27. 28.				
29				

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507

SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.22

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: E8419.D

Level:

(low/med)

Date Received: 09/13/00

% Moisture: 20

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500

(uL)

Date Analyzed: 09/19/00

Injection Volume:

CAS NO.

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

COMPOUND

pH: 7.5

Extraction: (Type) SONC CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

100-52-7	CAS NO.	COMPOUND	(ug/II OI ug/kg/ OG/kG	Q
108-95-2	100-52-7	Benzaldehyde	410	ן ט
95-57-8	108-95-2	Phenol	410	
95-57-8	111-44-4	bis(2-Chloroethyl)ether	410	
95-48-7 2-Methylphenol 410 U 98-86-2 Acetophenone 410 U U 106-44-5 Acetophenone 410 U U 106-44-5 Hexachloroethane 410 U U 98-95-3 Nitrobenzene 410 U U 105-67-9 2,4-Dimhlorophenol 410 U U 105-67-9 2,4-Dimhlorophenol 410 U U 111-91-1 Dimethylphenol 410 U U 105-67-9 Caprolactam 410 U U 105-60-2 Caprolactam 410 U U U 105-60-2 Caprolactam 410 U U U U U U U U U	95-57-8	2-Chlorophenol	410	
108-60-1 2,2'-oxybis(1-Chloropropane) 410	95-48-7	2-Methylphenol	410	
106-44-5	108-60-1	2,2'-oxybis(1-Chloropropane)	410	
106-44-5	98-86-2	Acetophenone	410	
621-64-7	106-44-5	4-metnyipnenoi		
Hexachloroethane	1 621-64-7	N-Nitroso-di-n-propylamine	410	
98-95-3	67-72-1	Hexachloroethane		
R8-75-5	98-95-3	Nitrobenzene		
105-67-9	78-59-1	Isophorone		
120-83-2	88-75-5	2-Nitrophenol		
120-83-2	105-67-9	2,4-Dimethylphenol		
120-83-2	111-91-1	bis(2-Chloroethoxy)methane		
106-47-8	120-83-2	2,4-Dichlorophenol		
R7-68-3	91-20-3	_Naphthalene		
105-60-2	106-47-8	4-Chloroaniline		
59-50-7 4-Chloro-3-methylphenol 410 U 91-57-6 2-Methylnaphthalene 410 U 77-47-4 Hexachlorocyclopentadiene 410 U 88-06-2 2,4,6-Trichlorophenol 410 U 95-95-4 2,4,5-Trichlorophenol 1000 U 92-52-4 1,1'-Biphenyl 410 U 91-58-7 2-Chloronaphthalene 410 U 88-74-4 2-Nitroaniline 1000 U 131-11-3 Dimethylphthalate 410 U 606-20-2 2,6-Dinitrotoluene 410 U 208-96-8 Acenaphthylene 410 U 99-09-2 3-Nitroaniline 1000 U	87-68-3	_Hexachlorobutadiene		
88-06-2	105-60-2	_Caprolactam		
88-06-2	59-50-7	_4-Chloro-3-methylphenol		
88-06-2	91-57-6	_2-Methylnaphthalene		
88-06-2	77-47-4	Hexachlorocyclopentadiene		
92-52-4 1,1'-Biphenyl 410 U 91-58-7 2-Chloronaphthalene 410 U 88-74-4 2-Nitroaniline 1000 U 131-11-3 Dimethylphthalate 410 U 606-20-2 2,6-Dinitrotoluene 410 U 208-96-8 Acenaphthylene 410 U 99-09-2 3-Nitroaniline 1000 U	88-06-2	2,4,6-Trichlorophenol		
91-58-7 2-Chloronaphthalene 410 U 88-74-4 2-Nitroaniline 1000 U 131-11-3 Dimethylphthalate 410 U 606-20-2 2,6-Dinitrotoluene 410 U 208-96-8 Acenaphthylene 410 U 99-09-2 3-Nitroaniline 1000 U	95-95-4	_2,4,5-Trichlorophenol		
1000 U 131-11-3 Dimethylphthalate 410 U 150-15 U 150-15 U 150-15 U 150-15 U 150-15 U 150-15 U 150-15 U 150-15 U 150-15 U 150-15 U 150-15 U 150-15 U 150-15 U U 150-15 U U U U U U U U U	92-52-4	_1,1'-Biphenyl		
131-11-3 Dimethylphthalate	91-58-7	_2-Chloronaphthalene		
208-96-8 Acenaphthylene 410 U 99-09-2 3-Nitroaniline 1000 U	88-74-4	2-Nitroaniline		
208-96-8 Acenaphthylene 410 U 99-09-2 3-Nitroaniline 1000 U	131-11-3	Dimethylphthalate		
208-96-8 Acenaphthylene 410 U 99-09-2 3-Nitroaniline 1000 U	606-20-2			
	208-96-8	Acenaphthylene		
83-32-9 Acenaphthene 410 U				
	83-32-9	_Acenaphthene	_ 410	U

Lab Name: ATAS, INC Contract: 68-W-00-066

Case No.: 28507 SDG No.: FGM63 Lab Code: ATAS SAS No.:

Matrix: (soil/water) SOIL Lab Sample ID: 30848.22

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E8419.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 20 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/19/00

Injection Volume: Dilution Factor: 1.0 2.0 (uL)

Extraction: (Type) SONC CONCENTRATION UNITS: GPC Cleanup: (Y/N) Y pH: 7.5

(ug/L or ug/Kg) UG/KG CAS NO. COMPOUND

CAD NO.	COMPOUND	(ug/n or ug/ng/ og/ng	. \times
51-28-5	2,4-Dinitrophenol	1000	Ū
100-02-7	4-Nitrophenol	1000	
132-64-9	Dibenzofuran	410	
121-14-2	2.4-Dinitrotoluene	410	
84-66-2	Diethylphthalate	410	U
86-73-7	Fluorene	410	<u>ע</u>
7005-72-3	4-Chlorophenyl-phenylether	410	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	<u>ט</u>
86-30-6	N-Nitrosodiphenylamine (1) 4-Bromophenyl-phenylether	410	<u>"</u>
101-55-3	4-Bromophenyl-phenylether	410	
118-74-1	Hexachlorobenzene	410	
	Atrazine	410	<u> </u>
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	410	<u>י</u>
	Anthracene	410	ַ <u></u>
86-74-8	Carbazole	410	U
84-74-2	Di-n-butyIphthalate	410	U
206-44-0	Fluoranthene	410	ש
129-00-0	Pyrene	410	U
85-68-7	Butylbenzylphthalate	410	<u></u>
91-94-1	Butylbenzylphthalate 3,3'-Dichlorobenzidine	410	ט
56-55-3	Benzo(a)anthracene	410	<u></u>
218-01-9	Chrysene	410	U
117-81-7	bis(2-Ethylhexyl)phthalate	410	ַ <u></u>
117-84-0	Di-n-octvlphthalate	160	BJ
205-99-2	Benzo (b) fluoranthene	410	ט
207-08-9	Benzo(k)fluoranthene	410	U
50-32-8	Benzo (a) pyrene	410	<u> </u>
193-39-5	Indeno(1,2,3-cd)pyrene	410	UU
53-70-3	Dibenz (a.h) anthracene	410	U
191-24-2	Benzo(g,h,i)perylene	410	UU
(1) Cannot be	seperated from Diphenylamine		

1G SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

FGM85

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.22

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: E8419.D

Level: (low/med)

d) LOW

Date Received: 09/13/00

% Moisture: 20

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/19/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 7.5

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 12

Date Analyzed: 09/22/00

FGM63 Contract: 68-W-00-066 Lab Name: ATAS, INC.

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: % Moisture:

Decanted: (Y/N) N Date Received: 09/13/00

14

Concentrated Extract Volume: 5000 (uL)

Extraction: (Type) SONC Date Extracted: 09/21/00

Injection Volume: 1.0 (uL) Dilution Factor:

GPC Cleanup: (Y/N) Y pH: 7.1 Sulfur Cleanup: (Y/N)

> CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

319-84-6 alpha-BHC 0.52	PJ P U U PB PJ
319-85-7 Deta-BHC 6.5	P U U PB
319-86-8 delta-BHC 2.0	UPB
	PB
76 A4 9 Tentachler	
309-00-2 Aldrin 0.56	
1024-57-3 Heptachlor epoxide 0.69	PJ
959-98-8 Endosulfan I 1.2	_ J
60-57-1 Dieldrin 0.46	PJ
72-55-9 4,4'-DDE 24	
72-20-8 Endrin 3.8	ט
33213-65-9 Endosulfan II 3.3	PJ
72-54-8 4,4'-DDD 8.6	
1031-07-8 Endosulfan sulfate 5.7	P
50-29-3 4,4'-DDT 44	PB
72-43-5 Methoxychlor 4.5	PJ
53494-70-5 Endrin ketone 2.7	PJ
7421-93-4 Endrin aldehyde	PJ
5103-71-9 alpha-Chlordane 2.0	u
5103-74-2 gamma-Chlordane 1.7	PJ
8001-35-2 Toxaphene 200	บ∤
12674-11-2 Aroclor-1016 38	
11104-28-2 Aroclor-1221 78	U
11141-16-5 Aroclor-1232 38	ן די
53469-21-9 Aroclor-1242 38	<u></u> ט
12672-29-6 Aroclor-1248 38	ט
11097-69-1 Aroclor-1254 38	
11096-82-5 Aroclor-1260 38	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FGM64

Lab Name: ATAS, INC.

Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.02

Sample wt/vol: 30.0 (g/mL) G

Lab File ID:

* Moisture: 22 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC

Date Extracted: 09/14/00

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 09/18/00

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Sulfur Cleanup: (Y/N) N

Q

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO. COMPOUND

4.0 24 2.2 2.2 2.2 6.1 P 2.2 U P 18 **5**.0 PR' 27 D, 4.2 ΪΪ $\overline{P}B$ 15 PB 18 20 B 53 18 JB **5.8** B Þ 16 2.2 U 16 PB' 220 U 42 U 86 U 42 U 42 IJ 42 U 42 U

Lab File ID:

Lab Name: ATAS, INC. Contract: 68-W-00-066 FGM65

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.05

30.0 (g/mL) G

Sample wt/vol:

% Moisture: 13 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/21/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/23/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

319-84-6 alpha-BH	C	2.01	Ū
319-85-7 beta-BHC		0.26	PJ
319-86-8 delta-BH	C [0.56	PJB
	C (Lindane)	2.0	
76-44-8 Heptachl	or	0.22	PJB
309-00-2 Aldrin		0.13	PJ
1024-57-3 Heptachl	or epoxide	2.0	
959-98-8 Endosulf	an I	2.0	U
60-57-1 Dieldrin		3.8	
72-55-9· 4,4'-DDE		28	P
72-20-8 Endrin		3.8	U
33213-65-9 Endosulf	an II	3.8	
72-54-8 4,4'-DDD		9.8	
	an sulfate	3.8	<u>ט</u>
50-29-3 4,4'-DDT		50	В
72-43-5 Methoxyo	hlor	20	U
53494-70-5 Endrin k	etone	3.8	<u>"</u>
7421-93-4 Endrin a	ldehyde	3.8	U
5103-71-9 alpha-Ch	lordane	2.0	U
5103-74-2 gamma-Ch		2.0	
8001-35-2 Toxaphen	e	130	BJP
12674-11-2 Aroclor-	1016	38	_ ע
11104-28-2 Aroclor-		77	ע די
11141-16-5 Aroclor-		38	<u>"</u>
53469-21-9 Aroclor-		38	<u></u>
12672-29-6 Aroclor-		38	<u>"</u>
11097-69-1 Aroclor-		38	
11096-82-5 Aroclor-	1260	38	

Lab Name: ATAS, INC.

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL' Lab Sample ID: 30848.06

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 21 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/14/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/21/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.9 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

Q 319-84-6_ _alpha-BHC_ 319-85-7_ beta-BHC 2.2 $\overline{0}.57$ PJB 2.2 __Heptachlor___ 0.36 PJB 309-00-2 Aldrin 2.2 _Heptachlor epoxide___ **1**024-57-3 $\overline{0}.25$ ÐJ 959-98-8 _Endosulfan I 0.18 PJ __60-57-1_ _Dieldrin 0.65 _4,4'-DDE 4.7 Endrin $\overline{0}.39$ PJ _Endosulfan II 33213-65-9 0.82 PJB 72-54-8 4,4'-DDD 1.7 PJB _Endosulfan sulfate 1031-07-8 $\overline{0}.71$ PJ -50-29-39.5 В 0.53 PJB 0.66 PJB PJ 1.4 0.33 PJ PJB 1.1 220 U 42 85 42 42 Ū 42 U 11097-69-1 Aroclor-1248 11097-69-1 Aroclor-1254 11096-82-5 Aroclor-1260 42 42

Lab Name: ATAS, INC. Contract: 68-W-00-066 FGM67

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 15 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/21/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/23/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG Q

319-84-6	alpha-BHC	2.0	Ū
319-85-7	beta-BHC	0.21	PJ
319-86-8	delta-BHC	0.40	PJB
58-89-9	gamma-BHC (Lindane)	2.0	— u—
76-44-8	Heptachlor	0.25	PJB
309-00-2	Aldrin	2.0	
1024-57-3	Heptachlor epoxide	2.0	
959-98-8	Endosulfan I	2.0	
60-57-1	Dieldrin	3.9	U
72-55-9	4,4'-DDE	34	P
72-20-8	Endrin	3.9	
33213-65-9	Endosulfan II	3.9	
72-54-8	4,4'-DDD	6.7	
1031-07-8	Endosulfan sulfate	3.9	"ט
50-29-3	-4,4'-DDT	61	EB
72-43-5	Methoxychlor	20	"ט
53494-70-5	Endrin ketone	3.9	<u>"</u>
7421-93-4	Endrin aldehyde	3.9	Ū
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	<u>"</u>
8001-35-2	Toxaphene	140	BJ
12674-11-2	Aroclor-1016	39	ע ד
11104-28-2	Aroclor-1221	79	<u></u>
11141-16-5	Aroclor-1232	39	
53469-21-9	Aroclor-1242	39	U
12672-29-6	Aroclor-1248	39	Ū
11097-69-1	Aroclor-1254	39	<u>"</u>
11096-82-5	_Aroclor-1260	39	U

Lab Name: ATAS, INC. Contract: 68-W-00-066 FGM71

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.08

Sample wt/vol: 30.0 (g/mL) G

% Moisture: 14 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/14/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/21/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.8 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG Q

Lab File ID:

Crab Ito.	COMPOUND	(ug/II or ug/kg/ og/kg	Q
319-84-6	alpha-BHC	2.01	Ū
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	0.69	PJB
58-89-9	gamma-BHC (Lindane)	2.0	
76-44-8	Heptachlor	0.25	PJB
309-00-2	Aldrin	0.090	PJ
1024-57-3	Heptachlor epoxide	0.13	J
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	0.58	JВ
72-55-9	4,4'-DDE	0.82	PJ
72-20-8	Endrin	3.8	ט "
33213-65-9	Endosulfan II	0.50	PJB
72-54-8	4,4'-DDD	0.50	PJB
1031-07-8	Endosulfan sulfate	0.74	PJ
50-29-3	4,4'-DDT	3.1	PJB
72-43-5	Methoxychlor	0.75	PJB
53494-70-5	Endrin ketone	0.14	PJB
7421-93-4	Endrin aldehyde	0.94	PJ
5103-71-9	alpha-Chlordane	0.35	PJ
5103-74-2	gamma-Chlordane	0.73	PJB
8001-35-2	_Toxaphene	200	ָ ט
12674-11-2	Aroclor-1016	38	<u>"</u>
11104-28-2	Aroclor-1221	78	
11141-16-5	Aroclor-1232	38	<u>"</u>
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	บ
11097-69-1	Aroclor-1254	38	บ
11096-82-5	Aroclor-1260	38	U

Lab Name: ATAS, INC. Contract: 68-W-00-066 FGM72

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.09

30.0 (g/mL) G

Sample wt/vol:

% Moisture: 9 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/14/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/21/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.4 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Lab File ID:

319-84-6	alpha-BHC1.9	U
319-85-7	beta-BHC 1.9	ן דים דיין ו
319-86-8	delta-BHC 0.47	JB
58-89-9	gamma-BHC (Lindane) 1.9	
76-44-8	Heptachlor 0.16	
309-00-2	Aldrin 1.9	
1024-57-3	Heptachlor epoxide 1.9	
959-98-8	Endosulfan I	J
60-57-1	Dieldrin 3.6	1
- 72-55-9	4,4'-DDE 24	
72-20-8	Endrin 3.6	
33213-65-9	Endosulfan II 3.6	
72-54-8	3.6	: [
1031-07-8	Endosulfan sulfate 3.6	
50-29-3	42 4 4 4 - DDT	В В
72-43-5	Methoxychlor 19	
53494-70-5	Endrin ketone 3.6	, J
7421-93-4	Endrin aldehyde 3.6	ן די די די
5103-71-9	alpha-Chlordane 1.9	
5103-74-2	gamma-Chlordane 1.9	
8001-35-2	Toxaphene 89	JP
12674-11-2	Aroclor-1016	
11104-28-2	Aroclor-1221 74	
11141-16-5	Aroclor-1232 36	
53469-21-9	Aroclor-1242 36	
12672-29-6	Aroclor-1248 36	
11097-69-1	Aroclor-1254	
11096-82-5	_Aroclor-1260	

Lab Name: ATAS, INC. Contract: 68-W-00-066 FGM73

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.10

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 8 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/22/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/26/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.1 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG

			×
319-84-6	alpha-BHC	1.8	U
319-85-7	beta-BHC	0.15	PJ
319-86-8	_delta-BHC	0.46	PJB
58-89-9	gamma-BHC (Lindane)	1.8	
76-44-8	Heptachlor	0.20	PJB
309-00-2	Aldrin	0.12	PJ
1024-57-3	Heptachlor epoxide	1.8	— "
959-98-8	Endosulfan I	1.8	<u>ŭ</u> _
60-57-1		3.6	<u>ŭ</u>
72-55-9	4,4'-DDE	52	E
72-20-8	Endrin	3.6	u _
33213-65-9	Endosulfan II	3.6	<u>u</u> _
72-54-8	4,4'-DDD	3.6	<u>ŭ</u>
1031-07-8	Endosulfan sulfate	3.6	-
50-29-3	_4,4'-DDT	110	EB
72-43-5	_Methoxychlor	18	
53494-70-5	Endrin ketone	3.6	<u>ŭ</u> _
7421-93-4	_Endrin aldehyde	3.6	<u>ŭ</u>
5103-71-9	alpha-Chlordane	1.8	<u>u</u>
5103-74-2	gamma-Chlordane	1.8	<u>ŭ</u>
8001-35-2	Toxaphene	260	
12674-11-2	Aroclor-1016	36	ן די
11104-28-2	Aroclor-1221	73	<u> </u>
11141-16-5	Aroclor-1232	36	<u>u</u>
53469-21-9	Aroclor-1242	36	—- ŏ —
12672-29-6	Aroclor-1248	36	—— <u>ŭ</u> —
11097-69-1	Aroclor-1254	36	— <u>ŭ</u> —
11096-82-5	Aroclor-1260	36	<u>u</u>

FGM74 Lab Name: ATAS, INC. Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 17 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/14/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/21/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5 Sulfur Cleanup: (Y/N) N

> CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG

Q 319-84-6
319-85-7
319-86-8
58-89-9
76-44-8
Heptachlor
309-00-2
Aldrin
Heptachlor epoxide
1024-57-3
959-98-8
60-57-1
72-55-9
72-20-8
Endosulfan I
72-55-9
72-20-8
Endrin
3213-65-9
Fendosulfan II
4,4'-DDE
Endosulfan II
4,4'-DDD
Endosulfan Sulfate
4,4'-DDD
Endosulfan sulfate
4,4'-DDT
Methoxychlor 2.0 2.0 _319-86-8<u>_</u> 2.0 58-89-9 2.0 U $\overline{0}.33$ PJB 2.0 U T024-57-3 2.0 U 959-98-8 2.0 U 0.36 JB 2.1 4.0 ับ 33213-65-9 0.76 PJB 1.4 JB 1031-07-8 $\overline{0}.29$ ЪĴ 3.5 PJB 13 JB 4.0 U БJ 0.86 0.29 J U 2.0 200 U 40 **ั**บ 81 ับ 40 Ū 40 ับ 40 Ū 40 IJ 40

Lab Name: ATAS, INC.

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507

SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.12

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 12 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/14/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/21/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 4.1 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

		*	
319-84-6	_alpha-BHC	1.9	Ŭ
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	0.36	PJB
58-89-9	gamma-BHC (Lindane)	1.9	" ט
76-44-8	Heptachlor	1.9	
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	Ū
959-98-8	Endosulfan I	1.9	<u>"</u>
60-57-1	Dieldrin	3.8	ט
72-55-9	4,4'-DDE ·	13	
72-20-8	Endrin	3.8	<u>"</u>
33213-65-9	Endosulfan II	3.8	<u>"</u>
72-54-8	4,4'-DDD	3.8	<u>"</u>
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	29	В
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.8	U
7421-93-4	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane	1.9	ט
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	52	JP
12674-11-2	Aroclor-1016	38	<u></u>
11104-28-2	Aroclor-1221	76	ט
11141-16-5	Aroclor-1232	38	<u>"</u>
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	<u>"</u>
11097-69-1	Aroclor-1254	38	<u>"</u>
11096-82-5	Aroclor-1260	38	

Lab Name: ATAS, INC. Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.13

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 12 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/14/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/21/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.3 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

	Ū
	UU
	PJB
	ן דט
Heptachlor 0.25	PJB
	PJ
Heptachlor epoxide 1.9	ן ט
	U
3.4	J
Endrin 3.8	
Endosulfan II 3.8	U
3.8	
Endosulfan sulfate 3.8	U
7.0	PB
Methoxychlor 19	U
Endrin ketone 3.8	U
Endrin aldehyde 3.8	
alpha-Chlordane 1.9	<u>"</u>
gamma-Chlordane 1.9	<u></u>
Toxaphene 63	JP
Aroclor-1016 38	ן ט
Aroclor-1221 76	
Aroclor-1232 38	<u></u>
Aroclor-1242 38	<u>"</u>
Aroclor-1248 38	<u>"</u>
Aroclor-1254 38	<u>"</u>
Aroclor-1260 38	U
	gamma-BHC (Lindane) 1.9 Heptachlor 0.25 Aldrin 0.13 Heptachlor epoxide 1.9 Endosulfan I 3.8 4,4'-DDE 3.4 Endrin 3.8 Endosulfan II 3.8 Endosulfan sulfate 3.8 Endosulfan sulfate 3.8 Endrin ketone 3.8 Endrin aldehyde 3.8 alpha-Chlordane 1.9 gamma-Chlordane 1.9 Toxaphene 63 Aroclor-1016 38 Aroclor-1221 76 Aroclor-1232 38 Aroclor-1242 38 Aroclor-1248 38 Aroclor-1254 38

FGM77

Lab Name: ATAS, INC.

Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.14

Sample wt/vol: 30.0 (g/mL) G

Lab File ID:

% Moisture:

12

Decanted: (Y/N) N

Date Received: 09/13/00

Extraction: (Type) SONC

Date Extracted: 09/14/00

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 09/21/00

Injection Volume:

1.0(uL)

Dilution Factor:

GPC Cleanup: (Y/N) Y

pH: 5.4

Sulfur Cleanup: (Y/N)

N

CONCENTRATION UNITS:

CAS NO. COMPOUND

(ug/L or ug/Kg) UG/KG

Q

319-84-6	alpha-BHC1.9	UU
319-85-7	beta-BHC 1.9	U
319-86-8	delta-BHC 0.15	PJB
58-89-9	gamma-BHC (Lindane) 1.9	יט די
76-44-8	Heptachlor 0.23	PJB
309-00-2	Aldrin 1.9	ט "
1024-57-3	Heptachlor epoxide 1.9	U
959-98-8	Endosulfan I 1.9	U
60-57-1	Dieldrin 3.8	U
72-55-9	4.4'-DDE - 4.3	
72-20-8	Endrin 3.8	<u>ט</u>
33213-65-9	Endosulfan II 3.8	U
72-54-8	3.8	U
1031-07-8	Endosulfan sulfate 3.8	<u>"</u>
50-29-3	11	B
72-43-5	Methoxychlor 19	<u>"</u>
53494-70-5	Endrin ketone 3.8	U
7421-93-4	Endrin aldehyde 3.8	U
5103-71-9	alpha-Chlordane 1.9	
5103-74-2	gamma-Chlordane 1.9	
8001-35-2	Toxaphene 46	JP
12674-11-2	Aroclor-1016 38	ַ ע
11104-28-2	Aroclor-1221 76	U
11141-16-5	Aroclor-1232 38	U
53469-21-9	Aroclor-1242 38	<u>"</u>
12672-29-6	Aroclor-1248 38	<u>"</u>
11097-69-1	Aroclor-1254 38	
	Aroclor-1260 38	U
· ·	1	·

Lab File ID:

Lab Name: ATAS, INC.

Contract: 68-W-00-066

FGM78

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.15

Sample wt/vol: 30.0 (g/mL) G

% Moisture: 5 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/21/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/23/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 4.1 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG

CAD III.	COM COMB	(ug/II or ug/Ng/ og/Ng	Q
319-84-6	alpha-BHC	1.8	Ū
319-85-7	beta-BHC	0.78	
319-86-8	_delta-BHC	0.32	PJB
58-89-9	gamma-BHC (Lindane)	1.8	ן ט
76-44-8	Heptachlor	1.8	
309-00-2	Aldrin	0.17	J
1024-57-3	Heptachlor epoxide	1.8	
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	3.5	U
72-55-9	4,4'-DDE	140	PE
72-20-8	Endrin	3.5	
33213-65-9	Endosulfan II	3.5	
72-54-8	4,4'-DDD	3.5	U
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	470	PEB
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.5	U
7421-93-4	Endrin aldehyde	3.5	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	1.8	
8001-35-2	Toxaphene	1400	BP
12674-11-2	Aroclor-1016	35	U
11104-28-2	Aroclor-1221	71	
11141-16-5	Aroclor-1232	35	U
53469-21-9	Aroclor-1242	35	
12672-29-6	Aroclor-1248	35	<u>"</u>
11097-69-1	_Aroclor-1254	35	U
11096-82-5	Aroclor-1260	35	U

FGM78DL

Lab Name: ATAS, INC.

Contract: 68-W-00-066

SDG No.: FGM63

Lab Code: ATAS

Case No.: 28507

SAS No.:

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.15DL

Sample wt/vol:

30.0 (g/mL) G

Lab File ID:

% Moisture:

5

Decanted: (Y/N) N

pH: 4.1

Date Received: 09/13/00

Extraction: (Type) SONC

Date Extracted: 09/14/00

Concentrated Extract Volume:

5000 (uL)

Date Analyzed: 09/26/00

Injection Volume:

1.0 (uL)

Dilution Factor:

GPC Cleanup: (Y/N) Y

Sulfur Cleanup: (Y/N)

CAS NO.

COMPOUND

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

0

319-84-6	alpha-BHC 36	Ū
319-85-7	beta-BHC 36	<u>"</u>
319-86-8	delta-BHC 36	U
58-89-9	gamma-BHC (Lindane) 36	<u>"</u>
76-44-8	Heptachlor 36	<u>"</u>
309-00-2	Aldrin 36	ט
1024-57-3	Heptachlor epoxide 36	
959-98-8	Endosulfan I 36	U
60-57-1	Dieldrin 69	U
72-55-9	170	D
72-20-8	Endrin 69	U
33213-65-9	Endosulfan II 69	
72-54-8	-4,4'-DDD 69	
1031-07-8	Endosulfan sulfate 69	U
50-29-3	700 700	DB
72-43-5	Methoxychlor360	<u>י</u>
53494-70-5	Endrin ketone 69	U
7421-93-4	Endrin aldehyde 69	U
5103-71-9	alpha-Chlordane 36	U
5103-74-2	gamma-Chlordane 36	U
8001-35-2	Toxaphene 1600	DJ
12674-11-2	Aroclor-1016 690	
11104-28-2	Aroclor-1221 1400	U
11141-16-5	Aroclor-1232 690	U
53469-21-9	Aroclor-1242 690	U
12672-29-6	Aroclor-1248 690	U
11097-69-1	Aroclor-1254 690	
11096-82-5	Aroclor-1260 690	U

Lab Name: ATAS, INC. Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.16

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 32 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/21/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/23/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.9 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:
CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

319-84-6 alpha-BHC beta-BHC 0.50 PJ			(49,2 01 49,49, 00,40	×
319-85-7 beta-BHC delta-BHC delta-BHC 1.1 PJB 58-89-9 gamma-BHC (Lindane) 2.5 U 76-44-8 Heptachlor 0.52 PJB 309-00-2 Aldrin 0.26 PJ 1.1 PJ 959-98-8 Endosulfan I 1.1 PJ 60-57-1 Dieldrin 0.93 PJ 72-55-9 4;4'-DDE 40 72-20-8 Endrin 4.0 PJ 33213-65-9 Endosulfan II 3.2 J 72-54-8 1.0 PJ 53494-70-5 Endosulfan sulfate 1.0 PJ 53494-70-5 Endrin Athone 1.1 PJ 5103-74-2 gamma-Chlordane 0.73 PJ 5103-74-2 gamma-Chlordane 0.73 PJ 1104-28-2 Aroclor-1211 99 U 11141-16-5 Aroclor-1242 49 U 12672-29-6 Aroclor-1242 49 U 11097-69-1 Aroclor-1244 49 U 11097-69-1 Aroclor-1254 4	319-84-6	alpha-BHC	0.41	PJ
319-86-8	319-85-7			PJ
S8-89-9 Gamma-BHC (Lindane) 2.5 U 76-44-8 Heptachlor 0.52 PJB 309-00-2 Aldrin 0.26 PJ 1024-57-3 Heptachlor epoxide 0.45 PJ 959-98-8 Endosulfan I 1.1 PJ 60-57-1 Dieldrin 0.93 PJ 72-55-9 4.4'-DDE 40 72-20-8 Endrin 4.0 PJ 33213-65-9 Endosulfan II 3.2 J 72-54-8 4.4'-DDD 6.1 1031-07-8 Endosulfan sulfate 1.0 PJ 50-29-3 4.4'-DDT 60 B 72-43-5 Methoxychlor 4.0 PJ 53494-70-5 Endrin ketone 1.1 PJ 5103-71-9 alpha-Chlordane 0.79 PJ 5103-74-2 gamma-Chlordane 0.79 PJ 5103-74-2 Gamma-Chlordane 0.73 PJ 8001-35-2 Toxaphene 250 U 1104-28-2 Aroclor-1232 49 U 11097-69-1 Aroclor-1248 49 U U 11097-69-1 Aroclor-1254 49 U U 11097-69-1 Aroclor-1254 49 U U 11097-69-1 Aroclor-1254 49 U U 11097-69-1 Aroclor-1254 49 U U 11097-69-1 Aroclor-1254 49 U U 11097-69-1 Aroclor-1254 49 U U 11097-69-1 Aroclor-1254 49 U U 11097-69-1 Aroclor-1254 49 U U U 11097-69-1 Aroclor-1254 49 U U U U U U U U U	319-86-8			PJB
309-00-2	58-89-9	gamma-BHC (Lindane)	2.5	
309-00-2	76-44-8	Heptachlor	0.52	PJB
1024-57-3	309-00-2		0.26	PJ
959-98-8	1024-57-3	Heptachlor epoxide	0.45	PJ
72-55-9 4;4'-DDE 40 72-20-8 Endrin 4.0 PJ 33213-65-9 Endosulfan II 3.2 J 72-54-8 4,4'-DDD 6.1 1031-07-8 Endosulfan sulfate 1.0 PJ 50-29-3 4,4'-DDT 60 B 72-43-5 Methoxychlor 4.0 PJ 53494-70-5 Endrin ketone 1.1 PJ 7421-93-4 Endrin aldehyde 4.1 PJ 5103-71-9 alpha-Chlordane 0.79 PJ 8001-35-2 Toxaphene 250 U 1104-28-2 Aroclor-1016 49 U 11141-16-5 Aroclor-1232 99 U 12672-29-6 Aroclor-1242 49 U 12672-29-6 Aroclor-1254 49 U	959-98-8	Endosulfan I	1.1	PJ
T2-20-8	60-57-1		0.93	PJ
33213-65-9	72-55-9			
T2-54-8	72-20-8			
1031-07-8				J
50-29-3 4,4'-DDT 60 B 72-43-5 Methoxychlor 4.0 PJ 53494-70-5 Endrin ketone 1.1 PJ 7421-93-4 Endrin aldehyde 4.1 PJ 5103-71-9 alpha-Chlordane 0.79 PJ 5103-74-2 gamma-Chlordane 0.73 PJ 8001-35-2 Toxaphene 250 U 12674-11-2 Aroclor-1016 49 U 11104-28-2 Aroclor-1221 99 U 11141-16-5 Aroclor-1232 49 U 53469-21-9 Aroclor-1242 49 U 12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U			6.1	
72-43-5 Methoxychlor 4.0 PJ 53494-70-5 Endrin ketone 1.1 PJ 7421-93-4 Endrin aldehyde 4.1 PJ 5103-71-9 alpha-Chlordane 0.79 PJ 5103-74-2 gamma-Chlordane 0.73 PJ 8001-35-2 Toxaphene 250 U 12674-11-2 Aroclor-1016 49 U 11104-28-2 Aroclor-1221 99 U 1141-16-5 Aroclor-1232 49 U 53469-21-9 Aroclor-1242 49 U 12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U	1031-07-8			
53494-70-5 Endrin ketone 1.1 PJ 7421-93-4 Endrin aldehyde 4.1 PJ 5103-71-9 alpha-Chlordane 0.79 PJ 8001-35-2 Toxaphene 250 U 12674-11-2 Aroclor-1016 49 U 11104-28-2 Aroclor-1221 99 U 1141-16-5 Aroclor-1232 49 U 53469-21-9 Aroclor-1242 49 U 12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U	50-29-3			
7421-93-4 Endrin aldehyde 4.1 PJ 5103-71-9 alpha-Chlordane 0.79 PJ 5103-74-2 gamma-Chlordane 0.73 PJ 8001-35-2 Toxaphene 250 U 12674-11-2 Aroclor-1016 49 U 11104-28-2 Aroclor-1221 99 U 1141-16-5 Aroclor-1232 49 U 53469-21-9 Aroclor-1242 49 U 12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U		Methoxychlor	4.0	
5103-71-9 alpha-Chlordane 0.79 PJ 5103-74-2 gamma-Chlordane 0.73 PJ 8001-35-2 Toxaphene 250 U 12674-11-2 Aroclor-1016 49 U 11104-28-2 Aroclor-1221 99 U 11141-16-5 Aroclor-1232 49 U 53469-21-9 Aroclor-1242 49 U 12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U				
5103-74-2 gamma-Chlordane 0.73 PJ 8001-35-2 Toxaphene 250 U 12674-11-2 Aroclor-1016 49 U 11104-28-2 Aroclor-1221 99 U 11141-16-5 Aroclor-1232 49 U 53469-21-9 Aroclor-1242 49 U 12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U		Endrin aldehyde		
8001-35-2 Toxaphene 250 U 12674-11-2 Aroclor-1016 49 U 11104-28-2 Aroclor-1221 99 U 11141-16-5 Aroclor-1232 49 U 53469-21-9 Aroclor-1242 49 U 12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U		_alpha-Chlordane		
12674-11-2 Aroclor-1016 49 U 11104-28-2 Aroclor-1221 99 U 11141-16-5 Aroclor-1232 49 U 53469-21-9 Aroclor-1242 49 U 12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U		gamma-Chlordane		PJ
11104-28-2 Aroclor-1221 99 U 11141-16-5 Aroclor-1232 49 U 53469-21-9 Aroclor-1242 49 U 12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U				
11141-16-5 Aroclor-1232 49 U 53469-21-9 Aroclor-1242 49 U 12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U		Aroclor-1016		
53469-21-9 Aroclor-1242 49 U 12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U		Aroclor-1221		
12672-29-6 Aroclor-1248 49 U 11097-69-1 Aroclor-1254 49 U		Aroclor-1232		
11097-69-1 Aroclor-1254 49 U		Aroclor-1242		
			49	
11096-82-5 Aroclor-1260 49 U		Aroclor-1254		
	11096-82-5	Aroclor-1260	49	U

FGM80

Lab Name: ATAS, INC.

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.17

Sample wt/vol:

30.0 (g/mL) G

Lab File ID:

% Moisture: 20

Decanted: (Y/N) N

Date Received: 09/13/00

Extraction: (Type) SONC

Date Extracted: 09/14/00

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 09/21/00

Injection Volume:

1.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.0

Sulfur Cleanup: (Y/N)

N

Q

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG

319-84-6	alpha-BHC 2.1	UU
319-85-7	Deta-BHC 0.18	PJ
319-86-8	delta-BHC 0.41	PJB
58-89-9	gamma-BHC (Lindane) 2.1	ן די די
76-44-8	Heptachlor 0.33	PJB
309-00-2	Aldrin	PJ PJ
1024-57-3	Heptachlor epoxide 2.1	ן די די
959-98-8	Endosulfan I 2.1	ן די
60-57-1	Dieldrin 4.1	<u>"</u>
72-55-9	4,4'-DDE 18]
72-20-8	Endrin 4.1	<u>"</u>
33213-65-9	Endosulfan II 4.1	ַ ט
72-54-8	4,4'-DDD 6.2	B
1031-07-8	Endosulfan sulfate 4.1	<u>"</u>
50-29-3	7.3	PB
72-43-5	Methoxychlor 21	ַ <u></u>
53494-70-5	Endrin ketone 4.1	UU
7421-93-4	Endrin aldehyde 4.1	UU
5103-71-9	alpha-Chlordane 2.1	UU
5103-74-2	gamma-Chlordane 2.1	U
8001-35-2	Toxaphene 48	JP_
12674-11-2	Aroclor-1016 41	UU
11104-28-2	Aroclor-1221 84	UU
11141-16-5	Aroclor-1232 41	UU
53469-21-9	Aroclor-1242 41	U
12672-29-6	Aroclor-124841	<u> </u>
11097-69-1	Aroclor-125441	U
11096-82-5	Aroclor-126041	UU

FGM81 Lab Name: ATAS, INC. Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.18

Sample wt/vol: 30.0 (q/mL) G Lab File ID:

Date Received: 09/13/00 % Moisture: 23 Decanted: (Y/N) N

Extraction: (Type) SONC Date Extracted: 09/14/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/21/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3 Sulfur Cleanup: (Y/N) N

> CONCENTRATION UNITS: CAS NO. COMPOUND

(ug/L or ug/Kg) UG/KG Q 319-84-6__alpha-BHC_ 2.2 319-85-7 | beta-BHC | delta-BHC | Camma-BHC | Camma-BHC | Delta-BHC | Camma-BHC | Delta-BHC .2 $\overline{0}.30$ PJB 58-89-9 gamma-BHC (Lindane) 76-44-8 Heptachlor 2.2 TI PJB 309-00-2 Aldrin Heptachlor epoxide 0.12 1024-57-3 2.2 U Endosulfan I 959-98-8 $\overline{0}.12$ PJ _Dieldrin_ _4,4'-DDE_ 60-57-1 0.36 JB 72-55-9 $\overline{0}.048$ PJ 72-20-8 _Endrin_ 0.19 PJ 33213-65-9 Endosulfan II 0.57 PJB 72-54-8 -4,4'-DDD 0.23 PJB 1031-07-8 Endosulfan sulfate___ 0.47 PJ __50-29-3-4,4'-DDT 1.0 PJB 72-43-5 _Methoxychlor_ 5.9 PJB Endrin ketone 53494-70-5 4.3 U 7421-93-4 Endrin Recone 5103-71-9 Endrin aldehyde 5103-71-9 alpha-Chlordane $\overline{0}.44$ 2.2 U 0.66 PJB 220 U 43 U 87 Ū 43 U 43 U

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FGM82

Lab Name: ATAS, INC.

Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.:

SDG No.: FGM63

Matrix: (soil/water) SOIL

Lab Sample ID: 30848.19

Sample wt/vol: 30.0 (g/mL) G

Lab File ID:

% Moisture: 16 Decanted: (Y/N) N

Date Received: 09/13/00

Extraction: (Type) SONC

Date Extracted: 09/21/00

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 09/23/00

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Sulfur Cleanup: (Y/N)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.18	J
319-85-7	beta-BHC	0.18	PJ
319-86-8	delta-BHC	0.29	PJB
58-89-9	gamma-BHC (Lindane)	2.0	"ט
76-44-8	Heptachlor	0.16	PJB
309-00-2	Aldrin	0.15	PJ
1024-57-3	Heptachlor epoxide	2.0	ן די
959-98-8	Endosulfan I	2.0	ט ו
60-57-1	Dieldrin	3.9	U
72-55-9	4,4'-DDE	3.9	U
72-20-8	Endrin	3.9	U
33213-65-9	Endosulfan II	3.9	ט
72-54-8	4,4'-DDD	3.9	U_U
1031-07-8	Endosulfan sulfate	3.9	U
50-29-3	_4,4'-DDT	18	PB
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	3.9	ַ <u> </u>
7421-93-4	Endrin aldehyde	3.9	<u>"</u>
5103-71-9	alpha-Chlordane	2.0	ַ
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	480	Bi
12674-11-2	Aroclor-1016	39	ן
11104-28-2	Aroclor-1221	80	<u></u>
11141-16-5	Aroclor-1232	39	ן
53469-21-9	Aroclor-1242	39	U_U
12672-29-6	Aroclor-1248	39	<u>"</u> "
11097-69-1	Aroclor-1254	39	UU
11096-82-5	Aroclor-1260	39	UU

FGM83 Lab Name: ATAS, INC. Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.20

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

Date Received: 09/13/00 % Moisture: 15 Decanted: (Y/N) N

Extraction: (Type) SONC Date Extracted: 09/14/00

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 09/21/00

Injection Volume: 1.0(uL) Dilution Factor:

GPC Cleanup: (Y/N) Y Sulfur Cleanup: (Y/N)

> CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG

319-84-6_ alpha-BHC

313-03-/	beta-BHC	1
319-86-8	delta-BHC 0.39	PJB
58-89-9	gamma-BHC (Lindane) 2.0	U
76-44-8	Heptachlor 0.25	PJB
309-00-2	Aldrin 0.095	PJ
1024-57-3	Heptachlor epoxide 2.0	ע
959-98-8	Endosulfan I 2.0	ט -
60-57-1	Dieldrin 3.9	<u>"</u>
72-55-9	4.4'-DDE 4.9	
72-20-8	Endrin 3.9	ע
33213-65-9	Endosulfan II 3.9	ַ <u> </u>
72-54-8	4,4'-DDD 3.9	<u>"</u>
1031-07-8	Endosulfan sulfate 3.9	''''
50-29-3	4,4'-DDT5.6	PB
72-43-5	Methoxychlor 20	"ט
53494-70-5	Endrin ketone 3.9	U
7421-93-4	Endrin aldehyde 3.9	ן ט
5103-71-9	alpha-Chlordane 2.0	<u>"</u>
5103-74-2	gamma-Chlordane 2.0	
8001-35-2	Toxaphene 62	JP
12674-11-2	Aroclor-1016 39	ן דיט
11104-28-2	Aroclor-1221 79	ן "ט
11141-16-5	Aroclor-1232 39	<u>"</u> "
53469-21-9	Aroclor-1242 39	U
12672-29-6	Aroclor-1248	U
11097-69-1	Aroclor-1254 39	U
11096-82-5	Aroclor-1260 39	ו־ט

Lab Name: ATAS, INC.

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.21

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 16 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/21/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/23/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG (

	·	
319-84-6_	_alpha-BHC0.14	J
319-85-7	beta-BHC2.0	Ŭ
319-86-8	delta-BHC	PJB
58-89-9	gamma-BHC (Lindane) 2.0	บ
76-44-8	Heptachlor 0.31	PJB
309-00-2	Aldrin 0.18	PJ
1024-57-3	Heptachlor epoxide 2.0	ט די
959-98-8	Endosulfan I 2.0	U
60-57-1	Dieldrin 3.9	U
72-55-9	4.4'-DDE 4.8	P
72-20-8	Endrin 3.9	U
33213-65-9	Endosulfan II 3.9	U
72-54-8	4,4'-DDD 3.9	U
1031-07-8	Endosulfan sulfate 3.9	U
50-29-3	4,4'-DDT 9.9	PB
72-43-5	Methoxychlor 20	
53494-70-5	Endrin ketone 3.9	U
7421-93-4	Endrin aldehyde 3.9	U
5103-71-9	alpha-Chlordane 2.0	
5103-74-2	gamma-Chlordane 2.0	U
8001-35-2	Toxaphene 220	BP
12674-11-2	Aroclor-1016 39	"ט
11104-28-2	Aroclor-1221 80	U
11141-16-5	Aroclor-1232 39	U
53469-21-9	Aroclor-1242 39	U
12672-29-6	Aroclor-1248 39	<u> </u>
11097-69-1	Aroclor-1254 39	
11096-82-5	Aroclor-1260 39	<u></u>

1E PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: ATAS, INC. Contract: 68-W-00-066 FGM85

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM63

Matrix: (soil/water) SOIL Lab Sample ID: 30848.22

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 20 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC Date Extracted: 09/21/00

Concentrated Extract Volume: 5000(uL) Date Analyzed: 09/23/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

319-84-6 alpha-BHC
319-85-7 beta-BHC
319-86-8 delta-BHC
58-89-9 gamma-BHC (Lindane)
76-44-8 Heptachlor
309-00-2 Aldrin
1024-57-3 Heptachlor epoxide
959-98-8 Endosulfan I
72-55-9 4,4'-DDE
72-20-8 Endrin
3213-65-9 Endosulfan II 2.1 Ū 2.1 U 0.23 gamma-BHC (Lindane) U 2.1 0.14 PJB 2.1 U 2.1 U 2.1 U U 4.1 4.1 Ū 72-55-9
72-20-8
33213-65-9
72-54-8
1031-07-8
50-29-3
72-43-5
53494-70-5
7421-93-4
5103-71-9
5103-74-2
8001-35-2
11104-28-2
11141-16-5
53469-21-9
12672-29-6
11096-82-5
Aroclor-1260
Endrin
Endosulfan sulfate
4,4'-DDT
Methoxychlor
Endrin ketone
Endrin aldehyde
alpha-Chlordane
gamma-Chlordane
Toxaphene
Aroclor-1016
Aroclor-1221
Aroclor-1242
Aroclor-1248
Aroclor-1254
Aroclor-1260 4.1 U 4.1 U 4.1 U 4.1 U PJB 3.1 21 IJ U 4.1 4.1 IJ U 2.1 2.1 Ū BJP 32 41 U U 84 41 U 41 U 41 ับ 41 U 41

001653

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6 HOUSTON BRANCH 10625 FALLSTONE RD. HOUSTON, TEXAS 77099

MEMORANDUM

Date:

October 6, 2000

Subject:

Contract Laboratory Program Data Review

From:

Marvelyh Humphrey, Alternate ESAT RPO, 6MD-HC

To:

B. Rhotenberry, 6SF-RA

Site :	BPS, INC.	 	
Case#:	28507		
SDG# :	MFJW63		

The EPA Region 6 Houston Branch ESAT data review team has completed a review of the submitted Contract Laboratory Program (CLP) data package for the referenced site. The samples analyzed and reviewed are detailed in the attached Regional data review report.

The data package is acceptable for regional use. Problems, if any, are listed in the report narrative.

If you have any questions regarding the data review report, please call me at (281) 983-2140.

Attachments

cc: R. Flores, Region 6 CLP/TPO

M. El-Feky, Region 6 Data Coordinator

Files (2)

LOCKHEED MARTIN SERVICES GROUP ESAT REGION VI 10101 SOUTHWEST FREEWAY, SUITE 500 HOUSTON, TEXAS 77074

MEMORANDUM

DATE:

October 5, 2000

TO:

Melvin Ritter/Marvelyn Humphrey, ESAT RPO/Alternate

RPO, Region VI

FROM:

Tom Chiang, ESAT Team Manager, Region VI

SUBJECT:

CLP Data Review

REF:

TDF #6-1004A

ESAT File No. I2454

ESAT Contract No. 68-D6-0005

Attached is the data review summary for Case #_

se # <u>28507</u> SDG # MFJW63

Site

BPS, INC.

COMMENTS:

I. CONTRACTUAL ASSESSMENT OF DATA PACKAGE:

CCS review found the data package contractually compliant.

Hard copy review detected the following contractualLY noncompliant item that CCS is not expected to detect.

The laboratory submitted the data package 2 working days late for the 14-day turnaround time requirement.

II. TECHNICAL/USABILITY ASSESSMENT OF DATA PACKAGE:

A total of 138 results were reviewed for this data package. Some results have been qualified because of technical problems. The significant problems are stated below.

- A. The antimony matrix spike recovery was below 75 percent.
- B. Blank concentrations affected some antimony and chromium results.

III. OTHER AREAS OF CONCERN

The sampler did not preserve the samples to the required temperatures.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6 HOUSTON BRANCH

10625 FALLSTONE ROAD HOUSTON, TEXAS 77099

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 28507 LABORATORY AATS CONTRACT# 68-W0-0086 SDG# MFJW63 SOW# ILM04.1 ACCT# 050102DJN94 SF# 50102DDY	SITE BPS, INC. NO. OF SAMPLES 6 MATRIX Soil REVIEWER (IF NOT ESD) ESAT REVIEWER'S NAME S. Meekins COMPLETION DATE October 5, 2000
SAMPLE NO. MFJ-W63 MFJ-W MFJ-W65 MFJ-W66	
DATA ASSE	SSMENT SUMMARY
ICP	HG
1. HOLDING TIMES 2. CALIBRATIONS 3. BLANKS 4. MATRIX SPIKES 5. DUPLICATE ANALYSIS 6. ICP QC 7. FAA QC	
8. LCS 9. SAMPLE VERIFICATION 10. OTHER QC 11. OVERALL ASSESSMENT M	0 0 0

O = Data had no problems.

M = Data qualified because of major or minor problems.

Z = Data unacceptable.

N/A= Not applicable

ACTION ITEMS: The laboratory submitted the data package two working days late.

AREAS OF CONCERN: Blank concentrations affected some antimony and chromium results. The antimony matrix spike recovery was below 75 percent. The sodium and zinc serial dilution differences were above 10 percent.

NOTABLE PERFORMANCE:

COMMENTS/CLARIFICATIONS REGION 6 CLP QA REVIEW

Case 28507 SDG MFJW63 Site BPS, INC. Lab AATS

COMMENTS: The SDG consisted of six soil samples for total metals analysis by ILM04.1. The sampler designated samples MFJ-W67 and MFJ-W68 as field duplicates and sample MFJ-W64 as the QC sample. The reviewer noted the following contractually noncompliant item.

• The laboratory submitted the data package 2 working days late for the 14-day turnaround time requirement.

Fifty-six percent of the reported results were above the CRDL's. Some results were qualified because of problems with blank concentrations, a matrix spike recovery, and serial dilution differences. The technical usability of all reported results is indicated in the Data Summary Table (DST). An Evidence Audit was conducted for the Complete Sample Delivery Group File (CSF), and the results were recorded in the Evidence Inventory Checklist.

NOTE: THE FOLLOWING REVIEW NARRATIVE ADDRESSES BOTH CONTRACTUAL ISSUES (BASED ON THE STATEMENT OF WORK) AND TECHNICAL ISSUES (BASED ON THE NATIONAL FUNCTIONAL GUIDELINES). THE ASSESSMENT MADE FOR EACH QC PARAMETER IS SOLELY BASED ON THE TECHNICAL DATA USABILITY, WHICH MAY NOT NECESSARILY BE AFFECTED BY CONTRACTUAL PROBLEMS. THE ASSESSMENTS ARE DEFINED BELOW.

- Acceptable = No results were qualified for any problems associated with this QC parameter.
- Provisional = Some results were qualified because of problems associated with this QC parameter.
- Unusable = All results are unusable because of major problems associated with this QC parameter.
- 1. Holding Times: Acceptable. The samples met contractual holding time criteria. Technical holding time criteria have not yet been established for soil samples. The laboratory reported a cooler temperature of 11.2°C, which is above the 4°C(±2°C) required by the SOW. Since the temperature was not excessive, the samples were not technically affected.
- 2. Calibrations: Acceptable. All calibrations met contractual requirements. The CRDL standard recoveries indicated acceptable instrument performance near the CRDL's.
- 3. Blanks: Provisional. Preparation and calibration blanks met contractual requirements although the laboratory reported 13 analytes in the blanks. The reviewer qualified the following results as indicated because of the laboratory blank concentrations.

The antimony results for samples MFJ-W63, MFJ-W64, MFJ-W66, and MFJ-W68 are considered undetected.

INORGANIC QA REVIEW CONTINUATION PAGE

Case 28507 SDG MFJW63 Site BPS, INC. Lab AATS

The chromium results for samples MFJ-W63, MFJ-W64, MFJ-W67, and MFJ-W68 are considered high biased.

- 4. Pre-digestion Matrix Spike Recovery: Provisional. The laboratory reported outlying matrix spike recoveries for antimony, selenium, silver, and zinc. The reviewer qualified as estimated and biased low the antimony results because the antimony matrix spike recovery was below 75 percent. The selenium, silver, and zinc matrix spike recoveries were only marginally outside the QC limits, so the reviewer did not qualify the selenium, silver, and zinc results.
- 5. Duplicate Analysis: Acceptable. Laboratory duplicate differences met technical QC criteria.
- 6. ICP Quality Control:

Serial Dilution: Provisional. The laboratory reported outlying serial dilution differences for sodium and zinc, so the reviewer qualified as estimated the sodium and zinc results. The sodium serial dilution result was lower than the undiluted result, indicating that matrix interferences enhanced the signal for sodium. So, the reviewer also qualified the sodium results as high biased. The zinc serial dilution result was higher than the undiluted result, indicating that matrix interferences suppressed the signal for zinc. Therefore, the reviewer also qualified the zinc results as low biased.

Interference Check Sample (ICS): Acceptable. The reported ICS results indicated satisfactory interelement and background corrections.

<u>Coefficient of Variation:</u> Acceptable. Replicate instrument readings were consistent.

- 7. Furnace Atomic Absorption Quality Control: Not Applicable.
- 8. Laboratory Control Sample (LCS): Acceptable. The laboratory reported acceptable LCS results, indicating satisfactory sample preparation and analysis.
- 9. Sample Verification: Acceptable. The laboratory correctly reported all sample results.
- 10. Other QC:

<u>Field Duplicates:</u> Acceptable. Field duplicate results were consistent.

INORGANIC QA REVIEW CONTINUATION PAGE

Case 28507 SDG MFJW63 Site BPS, INC. Lab AATS

11. Overall Assessment: Sample result qualifications are summarized below.

The reviewer qualified four antimony and four chromium results because of laboratory blank effects.

The reviewer qualified all antimony, sodium, and zinc results because of matrix related problems.

INORGANIC DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the ESAT-Region 6 qualifiers assigned to results in the inorganic data review process.

- Undetected at the laboratory reported detection limit (IDL).
- L Reported concentration is between the IDL and the CRDL.
- J Result is estimated because of outlying quality control parameters such as matrix spike, serial dilution, FAA spike recovery, etc.
- R Result is unusable.
- F A possibility of a false negative exists.
- UC Reported concentration should be used as a raised detection limit because of apparent blank contamination.
- * High bias. Actual concentration may be lower than the concentration reported.
- Low bias. Actual concentration may be higher than the concentration reported.

INORGANIC DATA SUMMARY

Case No.:

28507

SDG:

MFJW63

Reviewer: S. Meekins

Laboratory:

AATS

Matrix:

Soil

Units:

mg/Kg

	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA Sample #=>	MFJ-W63	MFJ-W64	MFJ-W65	MFJ-W66	MFJ-W67	MFJ-W68	
							enerolisticino i sem decembro della contra e e escapeta como e
A LUMINOME SE	24 2190 at 19	5130	6540	7530	\$4450	5770	
ANTIMONY	0.91 LUCJV	1.1 LUCJV	0.46 U Jv	0.55 LUCJV	0.46 U Jv	0.72 LUCJv	
nrisianies de la company	777	5.8	8.4	84		8.8	
BARIUM	99.5	109	122	102	90.1	104	
SELLAREIDINES CONT	is opio	0.30 L	0.42 [. १८४३ १८ 🕏	3 0.81 Lts	034 L	
CADMIUM	0.26 L	0.28 L	0.23 U	0.25 U	0.23 U	0.23 U	
GALCIUM	-2000)	17700	6430	14800	11.50 TA	Strain Sta	
CHROMIUM	6.4 J^	8.3 J^	9.0	9.8	6.7 J^	8.1 J^	
(SO) (Augusta	A KIND TO SERVE	(07°4E,	68 l±.	77,3	1 7 F		
COPPER	14.6	17.5	12.3	13.6	8.1	9.2	
IRON SEE SEE SEE	9230	12900	13200	15000	CONS.		
LEAD	6.8	6.5	8.3	7.5	6.9	6.8	
MAGNESIUM 1	8 40	10100	4460	7530	Sign Ex	2(690)	
MANGANESE	639	626	565	442	469	518	
MERGURYCLOSCO	**************************************	.0.08 L	0.08 L	A Dark 14	0.07	estados de la companya de la company	
NICKEL	9.3	12.0	12.3	12.2	8.7 L	10.7	
ROTASSUM	r Cris	1110 L	974 L	कर्मा <u>या</u> आहे.	7 2 3 7 2 7 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	e odpolite od	
SELENIUM	0.46 U	0.51 U	0.46 U	0.49 U	0.46 U	0.47 U	
SILVER	0.23 0	0.25 U	0.23 U	0.25 0	DEST D	0/28 U	
SODIUM	178 LJ^	230 LJ^	218 LJ^	294 LJ^	189 LJ^	278 LJ^	
THALLIUM -	0.69 U	0.76 U	0.69 Ù 👫	0.74 U 📆	0.69 U 📆	0.70 U	
VANADIUM	11.7	14.1	17.1	20.6	12.2	14.6	
ZINC	55.5 Jv	72.9 Jv	53.9 Jv.	67.8 JV	38.7 Jv 1	52.7 Jv	
1							
% Solids :	84.6	75.5	85.5	79.0	84.7	85.0	

INORGANIC/ORGANIC COMPLETE SDG FILE (CSF) INVENTORY CHECKLIST

Case No. <u>28507</u>	SDG No. MFJW63 SDG Nos. To Follo	w SAS No	_ Date R	ec <u>09/</u>	29/00
EPA Lab ID:	AATS	ORIGINALS	YES	NO T	N/A
Lab Location:	Broken Arrow, OK	CUSTODY SEALS			
Region:	6 Audit No.: 28507/MFJW63	1. Present on package?	х		
Resubmitted CSF?	Yes No _X	2. Intact upon receipt?	X		
Box No(s):	<u></u>	FORM DC-2			
COMMENTS:		3. Numbering scheme accurate?	х		
		4. Are enclosed documents listed?	X		
		5. Are listed documents enclosed?	х		
		FORM DC-1			
		6. Present?	X		
		7. Complete?	X		
-		8. Accurate?	X		
		CHAIN-OF-CUSTODY RECORD(s)			
		9. Signed?	x	i	
		10. Dated?	х		
		TRAFFIC REPORT(s) PACKING LIST(s)			
		11. Signed?	x		
		12. Dated?	х		·
		AIRBILLS/AIRBILL STICKER			
		13. Present?	х		
		14. Signed?	x		
		15. Dated?	X		
		SAMPLE TAGS			
*		16. Does DC-1 list tags as being included?	x		
		17. Present?	х		
		OTHER DOCUMENTS			
		18. Complete?	x		
·		19. Legible?	х		
·		20. Original?		х	
Over for additional	comments.	20 a. If "NO", does the copy indicate where original documents are located?	х		
Audited by:	anys of Michig	Sonya Meekins / ESAT Data Reviewer	Date	10/03/	00
Audited by:	<u> </u>		Date		
Audited by:			Date		
	Signature	Printed Name/Title		:	
	TO BE COM	PLETED BY CEAT			
Date Recvd by (CEAT: D	ate Entered: Date Reviewed:			
Enter	red by:				
Review					
	Signature	Printed Name/Title	-		
		Tamed Name 1 gic			

DC-2_

DISTRIBUTION:

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SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS YEER REVERSE FOR PURPOSE CODE DEFINITIONS

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: A	MERICAN_ANALYTICA	L_AND_T C	ontract:	68M00086_	_		
Lab Code: A	ATS Case No.	: 28507 S	AS No.:		SDG No.:MI	FJW63	
SOW No.: II	MO4.0/ A-qiable EPA Sample No MFJW64 MFJW64D MFJW64S MFJW65 MFJW66 MFJW67 MFJW68		Lab Samp _44309.0 _44309.0 _44309.0 _44309.0 _44309.0 _44309.0	12 3D4S5 67			
Were ICD in	uterelement correc	 tions appli			Yes/No	YES	
Were ICP ba	ackground correcti - were raw data ation of backgrou	ons applied generated b	? efore		Yes/No Yes/No	YES	
Comments:							
conditions other than in this had on diskette Manager's o	conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. Signature:						
Date:	09/28/00		-	Operations			
	<u> </u>			-E			

AMERICAN ANALYTICAL & TECHNICAL SERVICES, INC.

1700 West Albany / Broken Arrow, Oklahoma 74012 / Office (918) 251-2858 / Fax (918) 251-2599 SDG NARRATIVE

CONTRACT: 68W00086

DATE: September 28, 2000

CASE: 28507 SDG: MFJW63

SOW NO.: ILM04.1 EPISODE NO.:44309

INORGANIC METAL FRACTION:

Six soil samples plus one prep blank, one lab control, one matrix spike and one matrix spike duplicate were submitted for ICP and Hg analysis. No major problems occurred during the digestion or analysis of these samples. The cooler temperatures at time of receipt were at 11.2 degrees Celsius. The cooler indicator bottle was present. The lab uses a mixture of ICV-1, ICV-2, ICV-3, and ICV-4 for the ICP Initial Calibrations Verification analysis. In order to obtain results for sodium and potassium within the calibration range of the TRACE ICP's, the ICV-1 reference solution is prepared at twice the dilution suggested for the ICV-1 preparation. The sample's analyses were completed according to the following:

SWL SOP #

Method SOP is based

SWL-IN-200

ILM03.0/04.0 (digestion for ICP analysis)

SWL-IN-202

ILM03.0/04.0 (analysis of Hg by cold vapor)

Initial and Continuing Calibration Checks: No problems.

Initial and Continuing Calibration Blanks: The following elements showed low level concentrations below the Contract Required Detection Limit in the Calibration Blanks: Al, Sb and Fe No action required.

Linearity near the CRDL: The CRI standard was outside of our in-house warning limits of 70-130%R for the following elements: Se No action required.

Preparation Blanks: The following elements showed low level concentrations below the Contract Required Detection Limit in the Preparation Blank: Ca, Cr, Cu, Fe, Ni and Zn No action required.

Lab Control Spikes: No problems.

Matrix Spike: The following elements were outside the control limits of 75-125% recovery: Sb, Se, Ag and Zn

All associated samples were flagged with an "N" on form I's. No action required.

Duplicate: The following elements were outside the control limits of 0-20% RPD: Al and Zn All associated samples were flagged with an "*" on Form I's. No action required.

Serial Dilution: The water serial dilution were outside the control limits of 10% for the following elements: Na and Zn

All associated samples were flagged with an "E" on Form I's. No action required.

Sincerely,

Steve Markham
Operations Manager

2

	EPA	SAMPLE	NO
--	-----	--------	----

ILM04.1

Lab Name: AMERICAN_A	NALYTICAL AND T	Contract: 68W	00086	MFJW63
Lab Code: AATS	Case No.: 2850	•		SDG No.: MFJW63
Matrix (soil/water):	SOIL_	L	ab Sample	ID: 44309.01
Level (low/med):	LOW	D	ate Receiv	red: 09/13/00
% Solids:	_84.6			

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	С	Q	м
7429-90-5	Aluminum	4190	-	*	P
7440-36-0	Antimony -	0.91	B	N	P
7440-38-2	Arsenic	7.2			P_
7440-39-3	Barium	99.5			P_
7440-41-7	Beryllium	0.30	\overline{B}		P_
7440-43-9	Cadmium	0.26	В		P_
7440-70-2	Calcium_	20700	_		P_
7440-47-3	Chromium_	6.4			P_
7440-48-4	Cobalt	4.5			P_
7440-50-8	Copper	14.6			P_
7439-89-6	Iron	9230	_	· · · · · · · · · · · · · · · · · · ·	P_
7439-92-1	Lead	6.8	_		P_
7439-95-4	Magnesium	8140	_		P_
7439-96-5	Manganese	639	_		P_
7439-97-6	Mercury	0.08	B		C∇
7440-02-0	Nickel	9.3	_		P_
7440-09-7	Potassium	747	B		P
7782-49-2	Selenium_	0.46		N	P_
7440-22-4	Silver	0.23	U	N	P
7440-23-5	Sodium	178		E	P_
7440-28-0	Thallium_	0.69	U		P
7440-62-2	Vanadium_	11.7	 _		P_
7440-66-6	Zinc	55.5	_	_EN*	P_
	Cyanide_		 _		NR
	l		 _	1	I

Color Before:	BROWN	Clarity Before:		Texture: MEDIUM
Color After:	COLORLESS	Clarity After:	CLEAR_	Artifacts:
Comments:				

FORM I - IN

EPA	SAMPLE	NO
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100086	MFJW64
00008	l

Lab Name: AMERICAN_ANALYTICAL_AND_T Contract: 68W Lab Code: AATS__ Case No.: 28507_ SAS No.: ____ SDG No.: MFJW63

Matrix (soil/water): SOIL_

Lab Sample ID: 44309.02

Level (low/med):

Date Received: 09/13/00

% Solids:

_75.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

			_		
CAS No.	Analyte	Concentration	С	Q	М
7429-90-5 7440-36-0 7440-38-2 7440-39-3 7440-41-7 7440-43-9	Aluminum_ Antimony_ Arsenic_ Barium_ Beryllium Cadmium_	5130 1.1 5.8 109 0.30 0.28	i in in in in in in	* 	
7440-70-2 7440-47-3 7440-48-4 7440-50-8 7439-89-6 7439-92-1	Calcium_ Chromium_ Cobalt_ Copper_ Iron_ Lead	17700 8.3 6.7 17.5 12900 6.5	B -		
7439-95-4 7439-96-5 7439-97-6 7440-02-0	Magnesium Manganese Mercury Nickel	10100 626 0.08 12.0	- - B		P_ CV P_
7440-09-7 7782-49-2 7440-22-4 7440-23-5 7440-28-0 7440-62-2	Potassium Selenium Silver Sodium Thallium Vanadium	1110 0.51 0.25 230 0.76 14.1	困りしまり	N N E E	
7440-66-6	ZincCyanide	72.9	 - -	_EN*	P_NR

Color Before:	BROWN	Clarity Before:		Texture:	MEDIU
Color After:	COLORLESS	Clarity After:	CLEAR_	Artifacts:	
Comments:					

U.S. EPA - CLP

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

M	FJW(5 5	
1.1	LOW	99	
	*		

			MFJW65
Lab Name:	AMERICAN_ANALYTICAL_AND_T	Contract: 68W00086	

Lab Code: AATS__ Case No.: 28507_ SAS No.: ____ SDG No.: MFJW63

Matrix (soil/water): SOIL_ Lab Sample ID: 44309.05

Level (low/med): Date Received: 09/13/00 LOW

_85.5 % Solids:

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	С	Q	м
7429-90-5	Aluminum	6540	-	*	P
7440-36-0	Antimony	0.46	ប៊	N	P
7440-38-2	Arsenic -	8.4			P
7440-39-3	Barium	122	_		P_
7440-41-7	Beryllium	0.42	В		P_
7440-43-9	Cadmium_	0.23	U		P_
7440-70-2	Calcium_	6430	1		P_
7440-47-3	Chromium	9.0			P_
7440-48-4	Cobalt	6.3	$\overline{\mathbf{B}}$		P_
7440-50-8	Copper	12.3			P_
7439-89-6	Iron	13200	_		P_
7439-92-1	Lead	8.3	_		P_
7439-95-4	Magnesium	4460			P_
7439-96-5	Manganese	565	_		P_
7439-97-6	Mercury	0.08	B		C∇
7440-02-0	Nickel	12.3	_		P_
7440-09-7	Potassium	974	B		P_
7782-49-2	Selenium_	0.46	U	N	P_
7440-22-4	Silver	0.23	บ	N	P_
7440-23-5	Sodium	218	В	E	P_
7440-28-0	Thallium_	0.69	ט		P_
7440-62-2	Vanadium_	17.1	_		P_
7440-66-6	Zinc	53.9	_	_EN*	P
	Cyanide		_		NR
l	l		 _		!

Color Before:	BROWN	Clarity Before: Texture	MEDIUM
Color After:	COLORLESS	Clarity After: CLEAR_ Artifac	ts:
Comments:			

EPA SAMPLE NO.

ME.	TW.	6	2	

				60220006		MFJW66	
Lab	Name:	AMERICAN_A	ANALYTICAL_AND_T	Contract: 68W00086_	_		
Lab	Code:	AATS	Case No.: 28507	SAS No.:		SDG No.: MFJV	163

Matrix (soil/water): SOIL_

Lab Sample ID: 44309.06

Level (low/med):

Date Received: 09/13/00 LOW

% Solids:

_79.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

· ————					······
CAS No.	Analyte	Concentration	С	Q	М
7429-90-5	Aluminum	7530	-	*	P
7440-36-0	Antimony	0.55	B	N	$_{\rm P}^-$
7440-38-2	Arsenic	8.4			P_
7440-39-3	Barium	102	-		P^-
7440-41-7	Beryllium	0.44	B		P_
7440-43-9	Cadmium	0.25	บ		P
7440-70-2	Calcium	14300			P_
7440-47-3	Chromium	9.8	_		P_
7440-48-4	Cobalt	7.4	B		P
7440-50-8	Copper	13.6			P_
7439-89-6	Iron	16000	-		P
7439-92-1	Lead	7.5	-		P_
7439-95-4	Magnesium	7530	-		\mathbf{p}^{-}
7439-96-5	Manganese	442	-		P
7439-97-6	Mercury	0.11	B		C∇
7440-02-0	Nickel	12.2	-		P
7440-09-7	Potassium	1040	B		P ⁻
7782-49-2	Selenium	0.49	U	N	P
7440-22-4	Silver	0.25	ש	N	P
7440-23-5	Sodium	294	В		P
7440-28-0	Thallium	0.74	U		P_
7440-62-2	Vanadium	20.6			P ⁻
7440-66-6	Zinc	67.8	-	EN*	P_
	Cyanide		-		NR
	-,				
I	I ————	l	' —	1	• ——

Color Before:	BROWN	Clarity Before:	Texture: MEDIUM
Color After:	COLORLESS	Clarity After: CLEAR_	Artifacts:
Comments:			
			·

FORM I - IN

EPA	SAMPLE	NO.
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MFJW67

Lab Name: AMERICAN_ANALYTICAL_AND_T Contract: 68W00086_

Lab Code: AATS__ Case No.: 28507_ SAS No.: _____ SDG No.: MFJW63

Matrix (soil/water): SOIL

Lab Sample ID: 44309.07

Level (low/med):

Date Received: 09/13/00

% Solids:

_84.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

	I				
CAS No.	Analyte	Concentration	С	Q	М
7429-90-5	Aluminum	4450	_	*	P
7440-36-0	Antimony -	0.46	บี	N	P
7440-38-2	Arsenic	6.3			P
7440-39-3	Barium	90.1	-		P_
7440-41-7	Beryllium	0.31	B		P
7440-43-9	Cadmium	0.23	บ		P
7440-70-2	Calcium	7550			P
7440-47-3	Chromium	6.7			P_
7440-48-4	Cobalt	4.7	B		P_
7440-50-8	Copper	8.1			P_
7439-89-6	Iron	8500	_		P_
7439-92-1	Lead	6.9			P_
7439-95-4	Magnesium	3810			P_
7439-96-5	Manganese	469	-		P_
7439-97-6	Mercury	0.07	B		C∇
7440-02-0	Nickel	8.7	В		P
7440-09-7	Potassium	717	В		P_
7782-49-2	Selenium	0.46	บ	N	P_
7440-22-4	Silver	0.23	บ	N_	P_
7440-23-5	Sodium	189	В	E	P_
7440-28-0	Thallium	0.69	บ		P_
7440-62-2	Vanadium -	12.2			P
7440-66-6	Zinc	38.7		EN*	P_
	Cyanide		<u> </u>		NR
	_				[
·	•		- —		

Color	Before:	BROWN	Clarity	Before:		Texture:	MEDIU
Color	After:	COLORLESS	Clarity	After:	CLEAR_	Artifacts:	
Commer	nts:						

EPA	SAMPLE	NO.
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ILM04.1

Lab Name: AMERICAN_A	NALYTICAL_AND_T Contract: 6	MFJW68 8W00086
Lab Code: AATS	Case No.: 28507_ SAS No.	: SDG No.: MFJW63
Matrix (soil/water):	SOIL_	Lab Sample ID: 44309.08
Level (low/med):	LOW	Date Received: 09/13/00

% Solids: _85.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

					Γ
CAS No.	Analyte	Concentration	С	. Q	М
7429-90-5	Aluminum	5770	-	*	P
7440-36-0	Antimony -	0.72	\overline{B}	N	P_
7440-38-2	Arsenic	6.8	-		P
7440-39-3	Barium	104	-		$_{\rm P}^{-}$
7440-41-7	Beryllium	0.34	B		P-
7440-43-9	Cadmium	0.23	บิ		\bar{P}^-
7440-70-2	Calcium	9230	١		$_{\rm P}^{-}$
7440-47-3	Chromium	8.1	-		P-
7440-48-4	Cobalt	5.4	B		p-
7440-50-8	Copper	9.2	ויי		P-
7439-89-6	Iron	9830	-		P-
7439-92-1	Lead	6.8	 -		P-
		4590	-		P-
7439-95-4	Magnesium	518	-		P-
7439-96-5	Manganese		B	l ———	ĊŪ
7439-97-6	Mercury	0.08	Б		
7440-02-0	Nickel	10.7	=		P P
7440-09-7	Potassium	939	B	l	
7782-49-2	Selenium_	0.47	U	N	P_
7440-22-4	Silver	0.23	ח	<u>N</u>	P_
7440-23-5	Sodium	278	_	E	P_
7440-28-0	Thallium_	0.70	U		P_
7440-62-2	Vanadium_	14.6	 _		P_
7440-66-6	Zinc	52.7	_	_EN*	P_
	Cyanide_		_		NR
			_	<u> </u>	

Color	Before:	BROWN	Clarity	Before:		Texture:	MEDIUM
Color	After:	COLORLESS	Clarity	After:	CLEAR_	Artifacts:	
Commer	its:						
				· · · · · · · · · · · · · · · · · · ·			

FORM I - IN



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6 HOUSTON BRANCH 10625 FALLSTONE RD. HOUSTON, TEXAS 77099



MEMORANDUM

Date:	October	18,	2000
Subject.	Contract	t I.al	borat

Subject: Contract Laboratory Program Data Review

From: Marvelyn Humphrey, Alternate ESAT RPO, 6MD-HC

To: P. Ofosu, 6SF-RA

Site :	BPS, INC.	
Case#:	28507	
SDG# :	MFJW69	

The EPA Region 6 Houston Branch ESAT data review team has completed a review of the submitted Contract Laboratory Program (CLP) data package for the referenced site. The samples analyzed and reviewed are detailed in the attached Regional data review report.

The data package is acceptable for regional use. Problems, if any, are listed in the report narrative.

If you have any questions regarding the data review report, please call me at (281) 983-2140.

Attachments

cc: R. Flores, Region 6 CLP/TPO
 M. El-Feky, Region 6 Data Coordinator
 Files (2)

LOCKHEED MARTIN SERVICES GROUP ESAT REGION VI 10101 SOUTHWEST FREEWAY, SUITE 500 HOUSTON, TEXAS 77074

- Ch. VI

MEMORANDUM

DATE:

October 13, 2000

TO:

Melvin Ritter/Marvelyn Humphrey, ESAT RPO/Alternate

RPO, Region VI n

FROM:

Tom Chiang, ESAT Team Manager, Region VI

SUBJECT:

CLP Data Review

REF:

TDF #6-1009A

ESAT File No. 12455

ESAT Contract No. 68-D6-0005

Attached is the data review summary for Case #_

SDG # MFJW69

Site

BPS, INC

COMMENTS:

I. CONTRACTUAL ASSESSMENT OF DATA PACKAGE:

> CCS reported that compliance could not be determined because of missing raw data.

Hard copy review detected the following contractually noncompliant item that CCS is not expected to detect.

The laboratory submitted the data package 3 working days late for the 14-day turnaround time requirement.

II. TECHNICAL/USABILITY ASSESSMENT OF DATA PACKAGE:

A total of 391 results were reviewed for this data package. Some results have been qualified because of technical problems. The significant problems are stated below.

- Α. The antimony matrix spike recovery was below 75 percent.
- В. Blank concentrations affected some antimony, beryllium, and mercury results.
- C. Two thallium analyses had inconsistent instrument readings.

III. OTHER AREAS OF CONCERN:

The sampler did not preserve the samples to the required temperatures.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

HOUSTON BRANCH

10625 FALLSTONE ROAD HOUSTON, TEXAS 77099

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 28507			TE BP:	S, INC.	
LABORATORY AATS			. OF SAMPLI	ES <u>17</u>	
CONTRACT# 68-V	CONTRACT# 68-W0-0086				
SDG# MFJW69		RE	VIEWER (IF	NOT ESD) E	ESAT
SOW# ILM04.1				AME S. Meel	
ACCT# 150102D	JN01 SF# 50	102DDY CO	MPLETION DA	ATE <u>October</u>	13, 2000
				-	
SAMPLE NO.	MFJ-W69	MFJ-W73	<u>MFJ-W77</u>	MFJ-W81	MFJ-W85
	MFJ-W70	<u>MFJ-W74</u>	<u>MFJ-W78</u>	MFJ-W82	
	MFJ-W71	MFJ-W75	<u>MFJ-W79</u>	MFJ-W83	
	MFJ-W72	MFJ-W76	<u>MFJ-W80</u>	<u>MFJ-W84</u>	
		e e			
	DAT	'A ASSESSM	ENT SUMMAR	Y	
		ICP	HG	•	
		<u>_</u>			
1. HOLDING T		_0_			
2. CALIBRATIO	ONS	_0_	<u> </u>	•	
3. BLANKS		<u>M</u> _M	_ M _		
4. MATRIX SPI		_M_	<u>_o</u> _		
5. DUPLICATE	ANALYSIS	_0_	_0_		,
6. ICP QC		<u>M</u>	-	•	
7. FAA QC		17	0		
8. LCS	. T D T O 3 M T O 1 1	_ <u>M_</u>	_ ~_		
9. SAMPLE VE	RIFICATION		_0_		

O = Data had no problems.

M = Data qualified because of major or minor problems.

Z = Data unacceptable.

N/A= Not applicable

11. OVERALL ASSESSMENT

10. OTHER QC

ACTION ITEMS: The laboratory submitted the data package three working days late.

AREAS OF CONCERN: Blank concentrations affected some antimony, beryllium, and mercury results. The antimony matrix spike recovery was below 75 percent. The calcium, sodium, and zinc serial dilution differences were above 10 percent. Two thallium analyses had coefficients of variation greater than 20 percent. The sodium LCS result was outside the advisory limit.

NOTABLE PERFORMANCE:

COMMENTS/CLARIFICATIONS REGION 6 CLP QA REVIEW

Case 28507 SDG MFJW69 Site BPS. INC. Lab AATS

COMMENTS: The SDG consisted of 17 soil samples for total metals analysis by ILM04.1. The sampler designated sample MFJ-W69 as the QC sample and samples MFJ-W76/MFJ-W77 and MFJ-W83 and MFJ-W84 as field duplicate pairs. The reviewer noted the following contractually noncompliant item.

• The laboratory submitted the data package 3 working days late for the 14-day turnaround time requirement.

Fifty-six percent of the reported results were above the CRDL's. One manganese sample was diluted 2X because the manganese concentration was above the linear range. Some results were qualified because of problems with blank concentrations, a matrix spike recovery, an outlying laboratory control sample result, inconsistent instrument readings, and serial dilution differences. The technical usability of all reported results is indicated in the Data Summary Table (DST). An Evidence Audit was conducted for the Complete Sample Delivery Group File (CSF), and the results were recorded in the Evidence Inventory Checklist.

NOTE: THE FOLLOWING REVIEW NARRATIVE ADDRESSES BOTH CONTRACTUAL ISSUES (BASED ON THE STATEMENT OF WORK) AND TECHNICAL ISSUES (BASED ON THE NATIONAL FUNCTIONAL GUIDELINES). THE ASSESSMENT MADE FOR EACH QC PARAMETER IS SOLELY BASED ON THE TECHNICAL DATA USABILITY, WHICH MAY NOT NECESSARILY BE AFFECTED BY CONTRACTUAL PROBLEMS. THE ASSESSMENTS ARE DEFINED BELOW.

- Acceptable = No results were qualified for any problems associated with this QC parameter.
- Provisional = Some results were qualified because of problems associated with this QC parameter.
- Unusable = All results are unusable because of major problems associated with this QC parameter.
- 1. Holding Times: Acceptable. The samples met contractual holding time criteria. Technical holding time criteria have not yet been established for soil samples. The laboratory reported a cooler temperature of 11.2°C, which is above the 4°C(±2°C) required by the SOW. Since the temperature was not excessive, the samples were not technically affected.
- 2. Calibrations: Acceptable. All calibrations met contractual requirements. The CRDL standard recoveries indicated acceptable instrument performance near the CRDL's.
- 3. Blanks: Provisional. Preparation and calibration blanks met contractual requirements although the laboratory

INORGANIC QA REVIEW CONTINUATION PAGE

Case 28507 SDG MFJW69 Site BPS, INC. Lab AATS

reported 13 analytes in the blanks. The reviewer qualified the following results as undetected because of the laboratory blank concentrations:

the antimony results for samples MFJ-W80, MFJ-W81, MFJ-W82, MFJ-W83, MFJ-W84, and MFJ-W85;

the beryllium results for samples MFJ-W72, MFJ-W73, MFJ-W74, MFJ-W75, MFJ-W76, MFJ-W77, and MFJ-W78; and

the mercury results for samples MFJ-W69, MFJ-W70, MFJ-W71, MFJ-W72, MFJ-W73, MFJ-W74, MFJ-W75, MFJ-W76, MFJ-W77, MFJ-W78, and MFJ-W79.

- 4. Pre-digestion Matrix Spike Recovery: Provisional. The laboratory reported outlying matrix spike recoveries for antimony, selenium, and silver. The reviewer qualified as estimated and biased low the antimony results because the antimony matrix spike recovery was below 75 percent. The selenium and silver matrix spike recoveries were only marginally below the QC limits, so the reviewer did not qualify the selenium and silver results.
- 5. Duplicate Analysis: Acceptable. Laboratory duplicate differences met technical QC criteria.
- 6. ICP Quality Control:

Serial Dilution: Provisional. The laboratory reported outlying serial dilution differences for calcium, sodium and zinc, so the reviewer qualified as estimated the associated sample results. The serial dilution results were higher than the undiluted results, indicating that matrix interferences suppressed the signals for calcium, sodium, and zinc. Therefore, the reviewer also qualified these results as low biased. On the DST, a bias flag was not recorded for 11 sodium results because of a conflicting bias indicated by the laboratory control sample (see section 8).

Interference Check Sample (ICS): Acceptable. The reported ICS results indicated satisfactory interelement and background corrections.

<u>Coefficient of Variation:</u> Acceptable. The reviewer qualified as estimated the thallium results for samples MFJ-W77 and MFJ-W82 because replicate instrument readings were inconsistent.

7. Furnace Atomic Absorption Quality Control: Not Applicable.

INORGANIC QA REVIEW CONTINUATION PAGE

Case 28507 SDG MFJW69 Site BPS, INC. Lab AATS

- 8. Laboratory Control Sample (LCS): Provisional. laboratory reported a solid sodium LCS result that was outside the advisory QC limit. The high sodium LCS result indicated that the laboratory had difficulties conducting accurate analysis for sodium at a concentration far below Since the sodium concentrations in the associated the CRDL. samples had similar concentrations as the LCS result, the same problem may exist for these samples. Therefore, it is the reviewer's opinion that the high sodium LCS result indicated a high bias for all sodium results except the results for samples MFJ-W80, MFJ-W81, MFJ-W82, MFJ-W83, MFJ-W84, and MFJ-W85. However, on the DST, a bias flag was not recorded because of conflicting bias indicated by the serial dilution analysis (see section 6).
- 9. Sample Verification: Acceptable. The laboratory correctly reported all sample results.
- 10. Other QC:

<u>Field Duplicates:</u> Acceptable. Field duplicate results were consistent.

11. Overall Assessment: Sample result qualifications are summarized below.

The reviewer qualified 6 antimony, 7 beryllium, and 11 mercury results because of laboratory blank effects.

The reviewer qualified all antimony, calcium, sodium, and zinc results because of matrix related problems.

The reviewer qualified two thallium results because of inconsistent instrument readings.

The reviewer qualified 11 sodium results because of difficulties conducting the sodium analysis.

INORGANIC DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the ESAT-Region 6 qualifiers assigned to results in the inorganic data review process.

- Undetected at the laboratory reported detection limit (IDL).
- L Reported concentration is between the IDL and the CRDL.
- J Result is estimated because of outlying quality control parameters such as matrix spike, serial dilution, FAA spike recovery, etc.
- R Result is unusable.
- F A possibility of a false negative exists.
- UC Reported concentration should be used as a raised detection limit because of apparent blank contamination.
- * High bias. Actual concentration may be lower than the concentration reported.
- v Low bias. Actual concentration may be higher than the concentration reported.

INORGANIC DATA SUMMARY

Case No.:

28507

SDG:

MFJW69

Reviewer: S. Meekins

Laboratory:

AATS

Matrix:

Soil

Units:

mg/Kg

	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA Sample #=>	MFJ-W69	MFJ-W70	MFJ-W71	MFJ-W72	MFJ-W73	MFJ-W74	MFJ-W75
		·					
TENNING NEWSCOOL		((31)	6 6490	6030	7530	7370	6200 5
ANTIMONY	0.65 U Jv	0.64 U Jv	0.69 U Jv	0.64 U Jv	0.63 U Jv	0.71 U Jv	0.64 U Jv
र्शिक्ष=१(हर्स्स्टर्स्स्टर्स्स्टर्स्स्टर्स्स्टर्स्स्टर्स्स्ट्र्स्स्टर्स्स्टर्स्स्टर्स्स्टर्स्स्टर्स्स्टर्स्स्	84 - 1/20 (\$1)		Berry 192	6.5	3767	5.9	3,3
BARIUM	74.1	115	116	123	142	263	264
स्वर्धक शहा <u>त्र</u>		1,795.18		DAS JUC	(02.6% iada	0.50 LUC	0.43 LUC
CADMIUM	0.22 U	0.21 U	0.23 U	0.21 U	0.21 U	0.57 L	0.21 U
estenin'il	WE TELL SALE	\$200 Q	Eller are	12.50 No	(((()))) (()	াইন() থেঁপু	رينيا 1010 د دونونونونونونونونونونونونونونونونونون
CHROMIUM	6.0	7.6	7.5	7.9	9.3	9.5	7.6
₹.6 .7.1		(34)	5 3 /6 18	76 (A STATE OF THE PARTY OF THE PAR	¥4.9 L
COPPER	8.0	8.7	14.1	10.2	11.1	11.7	8.6
हिंगीर	1570	0.00	00	1500	(F) (F)	PRIO TE	8070
LEAD	9.8	6.5	6.8	8.6	9.0	14.3	6.0
VACUES OF	25020 Test	The County of the County	F580,	1580	71.95		
MANGANESE	352	541	493	518	653	898	775
ा <u>चर्</u> तकारक हैं		DOMESTICAL.		0,09 % (4)6	(1)(1): 115(6).	EUC.	₹ \$ 0.09 LÚC
NICKEL	7.3 L	11.6	11.1	12.0	14.4	15.9	11.1
Zoji, ika ji ji	0.000	.7893		62.1	The state of the s	6.016	:436 ; L 🕻
SELENIUM	0.87 U	0.86 U	0.92 U	0.85 U	0.84 U	0.94 U	0.85 U
S(2) at	Section of the second	(XXX)	No. (1)	in the same	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	a a jayraayeyy	0.64 U
SODIUM	209 LJ	294 LJ	لا 232	220 LJ	لـا 236	257 LJ	193 LJ
A Comment	2.5 5540 (\$455)	PEND.		13 U	A SOUTH AND THE	SALE UKAS	1,3 U .
VANADIUM	10.5 L	13.3	14.0	15.6	17.5	16.9	12.7
ZING SAR SEE SEE	43/3, 100	40.8 JV	*** 39,6 ** Jv	42.1 Jv	#44.2 *,Jv #	51.2 Jv	∵ 33.6 Jv 🤻
l							
% Solids :	89.5	91.3	82.8	91.7	91.6	80.9	92.2

INORGANIC DATA SUMMARY

Case No.:

28507

SDG:

MFJW69

Reviewer: S. Meekins

Laboratory:

AATS

Matrix:

Soil

Units:

mg/Kg

				<u> </u>			
EPA Sample #=>	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
Li A Seliture 4-2	MFJ-W76	MFJ-W77	MFJ-W78	MFJ-W79	MFJ-W80	MFJ-W81	MFJ-W82
ACOMISSION C	£ 3572260	6940	4970	4720			tradition were
ANTIMONY	0.67 U Jv	0.66 U Jy	0.61 U Jv			##14300 P	11200
ARSENIC VALUE	64	60	6.6	0.83 U Jv 8.2	0.72 LUCJv	0.64 LUCJv	The state of the s
BARIUM	161	152	106	121	300	.e. 7.8 96**	34,6 1
DETAIL OF THE	000 300	KG. LO	ានទី ប្រែ	(1852)	0.85	161	859
CADMIUM	0.22 U ·	0.22 U	0.20 U	0.28 U	0.36 L	0.30 L	18.00
<u>eargun</u>	7E9-37	4760 a 477	872 Liv	19500 WW	20100 	2310	1.1 L 7290 Na
CHROMIUM	9.4	9.0	6.9	7.9	12.0	15.0	25.7
COBALT COMMAN		78 9150	5.6 Le	83 L	# 10.8 L	-77.5	2011 2.538 3
COPPER	11.2	10.8	8.5	13.6	13.5	13.5	25.4
RONGS	18700	412800	9020	11100	7800	18600	48400
LEAD	9.2	9.2	8.1	13.0	12.0	6.5	38.4
MW6738100	अस्ति।		PÁO ÷	±2,570 · · · · · ·	i ejsk		3.250
MANGANESE	773	657	500	1010	1730	814	6240
MERCHANNEL STREET	10(1) 20(0)	0,000 (4.66)	(0)08 (406)	0.10	. Ú 10. Ú	000	* 1000 Fe (4.15)
NICKEL	14.7	13.9	10.2	9.8 L	17,4	19.4	51.8
407.68a		- (19 2 % 15.2%)	(4000 s (42)	664 TE 7	2 (8 (8 E - 1)	$I_{m0} \otimes I_{m}$	37753
SELENIUM	0.89 U	0.88 U	0.81 U	1.1 U	0.48 U	0.48 U	0.46 U
SAY THE	A MARINES	OACSE (L)	0.61 0	0.83 U	0.24 U	0.24 U	0.23 10
SODIUM	246 니	لبا 230	173 LJ	315 LJ	٧ليا 224	300 LJv	246 LJv
FACEUMANN SE	ik) U		24,48 E	1.7 L	0.72 U 🦠	0.71 U	1.8 LIV
VANADIUM ZING	18.1	17.7	12.7	15.5	26.3	24.0	73.2
ZING	43.5 JV	21 745.5 E JV	36.0 Jv	106_ *Jv	58.1 JV	56.5 Jy	120 T Jv
l							
% Solids :	88.0						
A SORUS :	88.0	88.0	94.2	69.1	80.4	80.1	84.1

INORGANIC DATA SUMMARY

Case No.:

28507

SDG:

MFJW69

Reviewer: S. Meekins

Laboratory:

AATS

Matrix:

Soil

Units:

mg/Kg

EPA Sample #=>	FLAG MFJ-W83	FLAG MFJ-W84	FLAG MFJ-W85	FLAG	FLAG	FLAG	FLAG
			1 1411 9-4400				
ห์(สัยให้เรื่อง ค	\$ - 25 ,721 (\$1.15)	7/80 1	100				
ANTIMONY	1.7 LUCJV	1.6 LUCJV					
Assailte.	3/2				1.70	:	
BARIUM	781	447	165			****	THE PARTY OF THE P
13 2 14 2 2 1 3 , 1						**************************************	
CADMIUM	1.6	0.96 L	0.78 L				¥ ···
Softeel & Ti	200	2800	200				
CHROMIUM	14.7	18.5	10.4				
(6.9): (16.3)	3/10 C	(V.)	UT02 16	M. M. Abra			
COPPER	25.1	19.4	17.0				
15.611-	98.10	Cskin Z	i moi.				文为:1000000000000000000000000000000000000
LEAD	41.3	35.8	13.1				
ग्रस्तर है के करन	34417	a livin 🕌	affilit .				
MANGANESE	7050	4690	911				
1 P. (P. 1)	90G-91	i Organies 🔻	AND BELL				
NICKEL	69.7	37.6	18.5				
20 7 Table 2 1/2	90 × 12	1.77	77.	Ma .		**************************************	*
SELENIUM	0.45 U	0.46 U	0.50 U				·
SILVER	5/4: (i)	020 (0.52	0.25 0				3 4 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
SODIUM	270 LJv	216 LJv	259 LJv			**************************************	
ij; Augus	ik, ik.		0.75 Ü				
VANADIUM	57.2	64.3	21.1				
ZINC	SIKS DV	93.9 Jy	65.4 Jv				
		The second secon	en en en en en en en en en en en en en e				
% Solids :	84.6	84.5	79.3				

INORGANIC/ORGANIC COMPLETE SDG FILE (CSF) INVENTORY CHECKLIST

Case No. 28507	SDG No. MFJW69 SDG Nos. To Foll	ow SAS No	Date R	ec <u>10</u>	/02/00
EPA Lab ID:	AATS	ORIGINALS	YES	NO	N/A
Lab Location:	Broken Arrow, OK	CUSTODY SEALS		:	
Region:	6 Audit No.: 28507/MFJW69	1. Present on package?	x		<u></u>
Resubmitted CSF?	Yes No _X	2. Intact upon receipt?	х		
Box No(s):	1	FORM DC-2			
COMMENTS:		3. Numbering scheme accurate?	x		
		4. Are enclosed documents listed?	х		
		5. Are listed documents enclosed?	х		
		FORM DC-1			
		6. Present?	х		l
		7. Complete?	х		<u> </u>
		8. Accurate?	X		
		CHAIN-OF-CUSTODY RECORD(s)			
		9. Signed?	x		l
		10. Dated?	х		
		TRAFFIC REPORT(s) PACKING LIST(s)			
		11. Signed?	x		1
		12. Dated?	х		
		AIRBILLS/AIRBILL STICKER			
		13. Present?	x		1
		14. Signed?	х		
		15. Dated?	x		—
		SAMPLE TAGS			
		16. Does DC-1 list tags as being included?	x		
		17. Present?	X		
		OTHER DOCUMENTS		·	
		18. Complete?	x		1
		19. Legible?	x		
		20. Original?	 ^ 	x	
		20 a. If "NO", does the copy indicate	X		
Over for additional	comments.	where original documents are located?	^		
Andited bee	Davis Do MM. 1.	Samue Masking / ESAT Data Davis	D-4-	10/10	/ 00
Audited by:	longs of Melis	Sonya Meekins / ESAT Data Reviewer	Date	10/10/	·VU
Audited by:	<u> </u>		Date		
Audited by:			Date		
	Signature	Printed Name/Title			***
	TO BE COM	MPLETED BY CEAT			
Date Recvd by (CEAT:	Date Entered: Date Reviewed:			
Enter	red by:				
Review	red by:				
	Signature	Printed Name/Title			
		20.0			

DC-2

SEPA United States Cont	Environmental Protection Agency act Laboratory Program	Inorganic Traffic Report & Chain of Custody Record (For Inorganic CLP Analysis)	Case No. 28507	人名约·人
1. Project Code	2. Region No. Sampling Co. ADEQ Sampler (Name)	4. Date Shipped Carrier	.6. Matrix (Enter. in Column A)	7. Preservative (Enter:
Non-Superfund Program	7erry Slight	# #214 1334 0231 5. Ship, To	1. Surface Water 2. Ground Water 3. Leachate	1. HCl 2. HNO3 3. NaOH g
Site Name BPS, Inc, City, State Site Spill ID Helena, AR	3. Purpose*, Early Action Long-Term Action Lead PA: FS	1700 West Albany	44. Field QC 4 0 0 0 155. Soil/Sediment 2 156. Oil (High only):: 7. Waste (High only) 2 17 8. Other (specify in Column A)	4. H2SO4. 5 5. K2CR2O7 8 6. Ice only 8 7. Other (specify in Column D) N. Not preserved
Sample Sample Numbers (from Box 6) labels) A B C Conc. Sample Type: Other: Other: A B C Sample Comp./ High Grab	Preservative (from Box 7) Other: Sign of the control of the contro	Regional Specific Station Tracking Number Location or Tag Numbers	D. Mo/Day/. G. Corresponding CLP Organic Sample No.	Samples of Field QC Initials Beliank 18 = Spike De Duplicate R = Rinsate PE = Perform, Eval. = Not a pC Sample
METW63 5 L G	6 X		7/12/00 9:37 FGW 63	73 11 11 11
METW 65 -5 L G-	16 X - 15 19 2 1	6-183851 - 5503	1/14/00/01/14 Ffm 65	75.位据自由注
MFJW67 5 L G	6 X		17210 10:45 FGM 66 17210 11:07 FGM 67	75 H
MFJW68 5 L G MFTW69 5 L G	6 X		1/2/00 11:07 FGM 68	75 Dofssos
MFJW 70 51 12 6		6-183866 5801	1121009:43 F6M70	73 6 排列
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			। श्रीतं रा	1
Complete? (YZN)	ample(s) to be Used for Laboratory		Chain of Custody S	i de la la la la la la la la la la la la la
Relinquiethed by: (Signature),	Date / Time Received by: (Signal 1800	nature) Pelindulshed by: (Signature)	\$ 10 mm	by: (Signature)
Relinquished by: (Signature)	Date / Time Received by: (Sig	nature) Relinquished by: (Signature)	Date / Time Received	by: (Signature)
	Date / Time Received for Labo (Signature)		is custody seal intact? Y/N/non	

DISTRIBUTION:

Green - Region Copy White - Lab Copy for Return to Region

Pink - CLASS Copy Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1 SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS 78EE REVERSE FOR PURPOSE CODE DEFINITIONS 371825

· · ·		}
(En In C 1. H 2. H 3. N 4. H	NO3 F G aOH G 2SO4	e de la companya de companya de la c
6. lc 7. O in	CR2O7 e only ther (specify Column D) ot preserved	
Sampler Initials	Field QC Qualifier B = Blank · S = Spike D = Duplicate) If p = Pkinsate - Not a QC Sample	
75 75	1340	140
15 15		(3)
73 75 16	Dof SB07	Page
10 1	1484 1484	
eal Num	ber(s)	·
by: (Sig	nature)	
by: (Sig	nalure)	*

1. Project Code Account Code	Environmental Protection Agency ract Laboratory Program 2. Region No. Sampling Co.	Inorganic Traffic Report & Chain of Custody Record (For Inorganic CLP Analysis) 4. Date Shipped Carrier 6. Matrix 7. Preservative
Regional Information	Teny Slight	Airbill Number 1334 023 CEnter (Enter in Column D)
Non-Superfund Program Site Name B'PS, Inc. City, State Helenu, AR	Sampler Signature 3. Purpose Early Action Long-Term CLEM Action Lead Signature CLEM Action Action PRP RIP REM RD RD RD ST SI CAMPED RESI NPLD	AATS AATS AAATS AAATS AAAAAAAAAAAAAAAAA
CLP Sample Numbers (from Box 6) (labels) A Matrix (from Box 6) Other CDP Matrix (from Box 6) Other Comp. Grab	vative 의 의 : only only	Regional Specific Station Location Vear/Time CLP Organic Initials Qualifier Sample No. Tracking Numbers Identifier Sample Sample No. Graph Numbers Collection Vear/Time Sample No. Graph
MFJW71 5 L G MEJW72 5 L G	Tallian region word & W. (State) Frilled Score States Milled Self-Fill Score	-183869 5B02 972-00 10103 FGM 71 75 1854 -183872 5B03 2-12-00 8156 FGM 72 75
MFJW73 5 L 6 MFJW74 5 L 6 MFJW75 5 L 60	6 X 5 7 1 6	-183875 SB04 7-12-00 10128 F6M73 173 -1838-78 SB05 9-12-00-10165 FGM74 173 -1838-81 SB06 9-12-00-9-107 F6M75 173
MFJW76 5 L G MFJW77 5 L G	6 8 6	- 183884 5B07 4-10-101827 FGM 76 73 11 2 - 183887 5B08 9-12-001827 FGM 77 75 Dof SB0
METW 78 5 L E	6 X	-183890 SB09 9-12-00-4124 FGM 78 73 14-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5-5
	ample(s) to be Used for Laboratory QC	
Relinquished by: (Skindlure)	Date / Time Received by: (Signal)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Date / Time Received by: (Signal	
Relinquished by: (Signature)	Date / Time Received for Laborat (Signature)	tory by: Date / Time Remarks Is custody seal intact? Y/N/none
DISTRIBUTION: . Green - Region Copy White - Lab Copy for		EPA Form 9110-1 SEE REVENSE FOR ADDITIONAL STANDARD INSTRUCTION SEE REVERSE FOR PURPOSE CODE DEFINITIONS 371824

. Project Code	Account Code	e 2. F	legion N				1	4. Date S	nipped C	arrier	P Analysis)	• 🔆	.6. Ma	trix ·	7.	Preservative	•
i klistici i k	<u>ი:8</u>	3.08 F	6:		POE	<u>Q</u>	<u> </u>		00:		FX:3	<u> </u>	! (Er	iter	1	(Enter: " !! In Column D	2
legional information		POE San	Teri		اُگا	9		Airbii Nui	nber. 14	334	023		P. S.	Column A) Juriace Water Fround Water	$\mathbf{S} = \{1, 2, 3, 3, 3, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3,$	1. HCI	
lon-Superfund Prog	ram .	San	pler Sign	nature	11	\ /	7	5. Ship To		14:] * :3. L	eachate: ; ield QC	6 II 3	3. NaOH 4. H ₂ SO ₄	
		3. P	urpose*	Early A	ction	447		A			Thank Su	6	5.8	oil/Sediment	1 1	5. K2CH2O7	
ite Name	•	land	.1.	\Box	LEM		-Term n ICC		1 2		lbany, Sui	3.5 9	6.C	il (High only /aste (High	/. ·	6. Ice only 7. 7. Othe <i>r, (spec</i>	if cify
BRS, Inc	<u> </u>		SF4.	HI F	IEM .		FS RD	"/3rg!	(en 1	grrow	OKINU	2/0プ	an io	nly): là ci ther <i>(specif</i>)	ž:	<i>in Column D</i> N. Not preserv	D)
telena, AR	Site:Spill ID		STU FED		In Sirr	Ŀ	RA O&M NPLD	ATTN:	Deb	orah	Inmai	n Si	1 - 9 24	Column A)	3 '	TO DISSEL	760
CLP	A B atrix Conc. Sa	C : D	E		Analys	is .		Region	F . 5 :	2	G: Station	Mo	H. ∕Day/	Correspond	ding Sam	pler ! Field Q	ر مر ا
Numbers (fi		mple Prese ype: vativ omp./ (fror	6 2 2	1	only	only:		Trackin	g Numbe	$\mathbf{r}_{i}=\{\mathbf{r}_{i}^{*}\}_{i=1}^{n}$	Location	Year	/Time:	 CLP Orga 	nic Initi	als Qualifie	er l
2 1 1 1 2 1 L	High to	arab Box	7) 🕺 💈	8 8	ğ	: B	<u> </u>	or Tag	Numbers	4 4 3	i Identifier		mple: 2. ection 1	Sample N	0.	B = Blank S = D = Duplics D = Duplics D = Rinsat PE = Perform. Hot a QC S	= Spike
(labels)	見: 計算は	Other:	E S	8 8) <u>E</u>	8	388	S.H. #	13 B	0 20	TET:	3	* 82 *	နှင့်	1 1	PE - Perform.	. Eval. Sample
MFJW79	5 4 6	G3 6		1 3 8		. [-	6	- 18:	389	3 🐃	5001	9BJa	ווינון כ	FGM 7	9 7	क र है की क र है की	1:
	5 4 6	9 6	K				6	- 18 3	89	5	<002	AK2100	13125	F6-M 8	0 73	\$ 1 m	
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NFJW 82	5 4	6 6		1 .		1=1	6	-183		ζ	5004	9112100		FGM S	72 73	(
NFTW 83	51 4 .	5 5 6	115			V 본	86	- 18	396	S. 33	5005	910100		FGM 8	3 73	1 2 4 6 6	F 3
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hipment for Case omplete? ()/N)	Page 3 of 3	Sample	(s) to be	Used	for Lal	orato	ry QC			Sampler	Signatures 011 P	. !			dy Seal N	lumber(s)	
	1	; '!	٠.			·-		CHAIN OF	CUSTO	DY RECO	RD		· · · · · · · · · · · · · · · · · · ·				
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Jua VI	with -	9/12/0	180	2	1-0	1	E	االر	b ·				. <u> </u>				υ #
elinquished by: (Si	7 1.1	்ற Date	Time	Re	ceived	by: (Signal :	ure)	Re	inquished	by: (Signature)		Date /: Ti	me Rece	eived by: ((Signalure)	
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a Palitical		• • • • • •		::[.				. 11.			3.4. 2.3.5		Ď				

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS... SEE REVERSE FOR PURPOSE CODE DEFINITIONS 371823

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

HOUSTON BRANCH 10625 FALLSTONE ROAD

HOUSTON, TEXAS 77099

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 28507 LABORATORY ATAS CONTRACT# 68-W-00-066 SDG# FGM68 SOW# SOW OLM04.2 ACCT#150102DJN01 SF#50102DDY	SITEBPS_Inc. NO. OF SAMPLES3 MATRIXSoil REVIEWER (IF NOT ESD)ESAT REVIEWER'S NAME_T. Y. Fan COMPLETION DATE_October 11, 2000
SAMPLE NO.'s: <u>FG-M68</u> FG-M69 FG-M70	
<u>DATA ASSE</u>	ESSMENT SUMMARY BNA PEST
1. HOLDING TIMES	<u> </u>

2.	GC/MS TUNE/INSTR. PERFORM.	O	0
3.	CALIBRATIONS	O	0
4.	BLANKS		
5.	SMC/SURROGATES	O	O
6.	MATRIX SPIKE/DUPLICATE		
7.	OTHER QC	O	M
8.	INTERNAL STANDARDS	O	N/A
9.	COMPOUND ID/QUANTITATION		M
10.	PERFORMANCE/COMPLETENESS	_ 0	O

O = Data had no problems.

M = Data qualified due to major or minor problems.

Z = Data unacceptable.

NA = Not applicable.

11. OVERALL ASSESSMENT

ACTION ITEMS: The data package arrived 3 working days late.

AREA OF CONCERN: Coeluting toxaphene peaks interfered with the identification of many pesticides for samples FG-M68 and FG-M69. The field duplicates have inconsistent toxaphene results. The two-column quantitation results were inconsistent for toxaphene in two samples.

NOTABLE PERFORMANCE:

COMMENTS/CLARIFICATIONS REGION VI CLP QA REVIEW

CASE28507	SDG FGM68 SITE	BPS Inc.	LAB ATAS
	is a summary of this CLP data:	sample qualifiers	used by Region 6
No.	Acceptable	Provisional	<u> Unacceptable</u>
BNA PEST	<u>3</u>		

COMMENTS: This SDG consists of three soil samples for BNA and Pest/PCB analyses by SOW OLM04.2. The OTR/COC Record designated sample FG-M69 as the QC sample and sample FG-M68 as the field duplicate of sample FG-M67 (in SDG FGM63). The BNA samples were analyzed following the low level method. The CRQL's required *moisture correction for these soil samples and additional correction for the diluted analyses. The corrected CRQL's were reported by the laboratory and are referred to as sample quantitation limits (SQL's) in this report. The data package arrived 3 working days late for the contractual 14-day turnaround time. The laboratory is otherwise contractually compliant.

Pest/PCB samples FG-M68 and FG-M69 contain high concentrations of toxaphene, DDT, and DDE. Although many other pesticides were also reported as positive hits for these two samples, their identifications are questionable because of coeluting toxaphene interferences. The high DDT and/or DDE concentrations required the analyst to reanalyze these two samples at a dilution. No target compounds were detected at concentrations above the SQL's in Pest/PCB sample FG-M70 or in any of the BNA samples. The field duplicate samples have inconsistent toxaphene concentrations.

Some results are provisional for two Pest/PCB samples because of problems with coeluting toxaphene interferences, compound quantitation, and inconsistent field duplicate results. The technical usability of all reported results is indicated by ESAT's final data qualifiers in the Data Summary Table. An Evidence Audit was conducted for the Complete Sample Delivery Group File (CSF), and the audit results were documented in the Evidence Inventory Checklist.

NOTE: THE FOLLOWING REVIEW NARRATIVE ADDRESSES BOTH CONTRACTUAL ISSUES (BASED ON THE STATEMENT OF WORK) AND TECHNICAL ISSUES (BASED ON THE NATIONAL FUNCTIONAL GUIDELINES). THE ASSESSMENT MADE FOR EACH QC PARAMETER IS SOLELY BASED ON THE TECHNICAL DATA USABILITY, WHICH MAY NOT NECESSARILY BE AFFECTED BY CONTRACTUAL PROBLEMS. THE ASSESSMENTS ARE DEFINED BELOW.

ORGANIC QA REVIEW CONTINUATION PAGE

CASE 28507 SDG FGM68 SITE BPS Inc. LAB ATAS

Acceptable = No results were qualified for any problem

associated with this QC parameter.

Provisional = Some results were qualified because of problems

associated with this QC parameter.

Unusable = All results are unusable because of major problems

associated with this QC parameter.

- 1. Holding Times: Acceptable. All samples met the contractual holding time criteria. No technical holding time criteria exist for the soil samples.
- 2. Tuning/Performance: Acceptable. DFTPP analyses met GC/MS tuning criteria. The Pest/PCB analyses met instrument performance quidelines.
- 3. Calibrations: Acceptable. TCL compounds met contractual calibration criteria. Two BNA analytes failed the technical %RSD and %D criteria. Since neither analyte was detected in the samples, result qualification is unnecessary, per Region 6 guidelines.
- 4. Blanks: Acceptable. The method and instrument blanks met contractual QC guidelines. The BNA method blank contains di-n-octylphthalate at a concentration below the CRQL. The Pest/PCB method blanks contain several pesticides and toxaphene at concentrations below the CRQL's. Results below the SQL's for the following analyts should be considered as undetected (U) because of laboratory contamination:

di-n-octylphthalate in all BNA samples;

 δ -BHC and heptachlor in Pest/PCB samples FG-M68 and FG-M69; and

dieldrin, endosulfan II, endosulfan sulfate, DDT, and endrin aldehyde in Pest/PCB sample FG-M70.

- 5. System Monitoring Compounds (SMC's)/Surrogates: Acceptable. Surrogate recoveries are within the QC limits for all samples.
- 6. Matrix Spike/Matrix Spike Duplicate (MS/MSD): Acceptable. The MS recovery for BNA spike compound 2,4-dinitrotoluene exceeded the QC limit. Since this compound was not detected in the unspiked sample, result qualification is unnecessary. DDT has zero percent MS/MSD recoveries. The outlying DDT recoveries were caused by the high DDT concentration in the native sample. Therefore, no result was qualified. Other MS/MSD results met QC guidelines for precision and %recovery.

ORGANIC QA REVIEW CONTINUATION PAGE

CASE 28507 SDG FGM68 SITE BPS Inc. LAB ATAS

7. Other QC:

Field Duplicates: Provisional. The field duplicate results are consistent with one exception. The toxaphene concentrations differed by a factor of 4 for field duplicate samples FG-M68 and FG-M67 (SDG FGM63). The reviewer qualified the toxaphene concentration for sample FG-M68 as estimated and biased high. The qualification for the toxaphene concentration of sample FG-M67 (estimated and biased low) is addressed in the review report for SDG FGM63.

The endosulfan II results appeared inconsistent for samples FG-M68 and FG-M67 too. The reviewer did not qualify any results for this inconsistency because it was resulting from the inconsistent toxaphene results. The peaks identified as endosulfan II were actually coeluting toxaphene peaks (see sec. 9 below).

- 8. Internal Standards (IS): Acceptable. IS performance met the QC criteria for all BNA analyses.
- 9. Compound Identity (ID)/Quantitation: Acceptable. None of the samples contain BNA analytes at concentrations above the SQL's. High concentrations of toxaphene, DDT, and DDE caused the analyst to dilute and reanalyze Pest/PCB samples FG-M68 and FG-M69. No target compounds were detected at concentrations above the SQL's in Pest/PCB sample FG-M70. The reported target compounds met the identification criteria specified in the SOW. GC/MS confirmation is not required for the reported Pest/PCB results.

Coeluting toxaphene peaks interfered with identification of many pesticides on one or both columns. The analyst reported the coeluting toxaphene peaks as pesticides because they met the compound identification criteria. However, their identifications are technically questionable in the reviewer's opinion. The effects of the coeluting toxaphene interferences are summarized below.

 Results below the SQL's for the following analytes should be considered as undetected (U):

heptachlor epoxide, endosulfan I, dieldrin, methoxychlor, endrin ketone, α -chlordane, and γ -chlordane in sample FG-M68 and

heptachlor epoxide, endosulfan I, dieldrin, α -chlordane, and γ -chlordane in sample FG-M69.

ORGANIC QA REVIEW CONTINUATION PAGE

CASE 28507 SDG FGM68 SITE BPS Inc. LAB ATAS

 Results above the SQL's for the following analytes should be considered as undetected (U), and the reported concentrations should be used as raised quantitation limits:

endrin, endosulfan II, DDD, endosulfan sulfate, and endrin aldehyde in sample FG-M68 and

endrin, endosulfan II, DDD, endosulfan sulfate, methoxychlor, endrin ketone, and endrin aldehyde in sample FG-M69.

The reviewer qualified the laboratory "P"-flagged toxaphene results for samples FG-M68 and FG-M69 because the two-column concentrations differed by more than 25%.

- 10. Performance/Completeness: Acceptable. The data package is complete but contains some reporting errors. The laboratory was contacted for the needed corrections (see FAX Record Log).
- 11. Overall Assessment: Data are acceptable for all BNA samples and one Pest/PCB sample.

Pest/PCB Some results were qualified for samples FG-M68 and FG-M69 because of problems with toxaphene interference, inconsistent field duplicate results, and compound quantitation.

ORGANIC DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the ESAT-Region 6 qualifiers assigned to results in the Data Summary Table.

- U Not detected at reported quantitation limit.
- N Identification is tentative.
- J Estimated value.
- L Reported concentration is below the CRQL.
- M Reported concentration should be used as a raised quantitation limit⁽¹⁾ because of interferences and/or laboratory contamination.
- R Unusable.
- A High biased. Actual concentration may be lower than the concentration reported.
- Low biased. Actual concentration may be higher than the concentration reported.
- F+ A false positive exists.
- F- A false negative exists.
- B This result may be high biased because of laboratory/field contamination. The reported concentration is above 5X or 10X the concentration reported in the method/field blank.
- **UJ** Estimated quantitation limit.
- T Identification is questionable because of absence of other commonly coexisting pesticides.
- * Result not recommended for use because of associated QA/QC performance inferior to that from other analysis.

ORGANIC DATA SUMMARY

Case No. :

28507

SDG:

FGM68

Reviewer: T. Fan

Laboratory:

ATAS

Matrix:

Soil

Units:

ug/Kg

SEMIVOLATILE		FLAG		FLAG	·	FLAG	 		T	
EPA SAMPLE NUMBER :	FG-M68		FG-M69		FG-M70			1		ł
				~				<u> </u>	, <u> </u>	
Dieliewer 2 Volume		()	370	·U.	360	U G	74 T-74			
Phenol	390	_	370	Ü	360	U	·			
exercional despesses	A 1000		370	UWW	A THE PARTY OF THE PARTY.	Unit			X 18 5 14	
2-Chlorophenol	390	-	370		360	-				
2-Methylphenol	390	Service and a service	-	U.	Carlo Carlo	U.				المعتب ع
2,2'-oxybis(1-Chloropropane) Acetoprenone	390 3 4 390		370	U U	360	U V				
4-Methylphenol	390	STATE OF THE PARTY	370		360					
National Section and Section		_		- O Section		0227	42400	CT ST 18 TAX	7663 F	
Hexachloroethane	390		370		360	The second second				
METALONIA SERVICIA	NS 1997	UASS.								
Isophorone	390	Ü	370	U	360	U				
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2,4-Dichlorophenol	390	_	370		360					
Naphthalereas and 4-Chloroaniline	390		PERMITTAL SCHOOL ST	U	manufactures of the state of th	U				
Horachic actions in the second	390 390	-	370 370	-	360	U 7044-2		u de la composition de la composition de la composition de la composition de la composition de la composition		
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4-Chloro-3-methylphenol	390			U		U	1705			797 F T T T T T T T T T T T T T T T T T T
2-Methylnaphthalene	390	AND MAKE SAME	370	A	360	-				LPLEAN
Heiselikows/dopeniedena (SV) 1883	390				360					
2,4,6-Trichlorophenol	390	THE RESERVE	370	. 42. 20. 100	360			ATTACKED FOR ELLENGING		MACHEN PROBLEMS
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1,1'-Biphenyi	390		370		360	_				
	***	Ú '- '	Marie Comment	U 📜	360	and the second		CARLE PROPERTY		7
2-Nitroaniline	980		920	-	910	-			Walter Committee	
Dimetrylphthalate	390		allies materials at the control of	U	elantiki anamanin	U				
2,6-Dinitrotoluene	390 390		370 370	-	360	U M				PROPERTY CHECKE
Acenaphthylene 3-Nitroaniline	980	Co	920	A CONTRACTOR OF THE PARTY OF TH	910	STREET, STREET				
Acenaphthene 2	390	-				0				
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4-Nitropheno	980	U SEE	920		910	-			77.15	
Dibenzofuran	390	U	370	And the second second	360	U		The state of the s	Marie Control of the	THE CHARGE STATES OF THE
2.4-Dinitrotoluene	::/390	U 😘	370 ج ر	Ú	360	U				
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Fluorence	390	**********	White the state of the second color	U .	entropial all an exer	U.				
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4-Nitroenline 4,6-Dinitro-2-methylphenol	980 980		∳ 920 920	ິບ 📜	910	and the second second second				di ani
N-Nilrosodiphenylamine				o Time San	910					ara e e e e e e e e e e e e e e e e e e
4-Bromophenyl-phenylether	390	<u> </u>	370 370	يناند اا	360		Carlain Curri	raine dina)		
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Pentachiorophenol	980			υ 🥽 🐧						
Phenanthrene	31	LJ	370	U	360	U				
Anthracene:	390	U * 7	370	U 📑	360	U				
Carbazole	390	U	370	U	360	U				

Note:

For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.:

28507

SDG:

FGM68

Soil

Reviewer: T. Fan

Laboratory:

ATAS

Matrix:

Units:

ug/Kg

SEMIVOLATILE		FLAG		FLAG	FLAG			
EPA SAMPLE NUMBER :	FG-M68		FG-M69		FG-M70			
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utylbenzylphthalate	390	U	370	U	360 U			
G-Dehorberzühe	2 890	0	970	du.	360 U			
enzo(a)anthracene	51	IJ	370	U	360 U	 		
BILLIA SER SER SERVICE	102	1867 A	< 7(0)	115	LOUIS		1 (4 (/ (5) (5)	1800 D S\$350
s(2-Ethylinexyl)phthalate	390	U	71	LJ	360 U			
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enzo(b)fluoranthene	74	IJ	370	U	360 U			
	143	12.19	· γ.					
enzo(a)pyrene	47	W	370		360 U			
CONTRACTOR OF THE		40.00	3 300					
ibenzo(a,h)anthracene	390	_	370		360 U			
The Chienism of the of	in bajo.	U	give sitti	* .				
Sample wt (g) :	30		30		30			
%Moisture:	15		10		9			
Dilution Factor :	1		1		1			
Level :	Low		Low		Low			
Number of TIC's :	9		15	* .	7			

ORGANIC DATA SUMMARY

Case No. :

28507

SDG:

FGM68

Reviewer: T. Fan

Laboratory:

ATAS

Matrix:

Soil

Units:

ug/Kg

PESTICIDES/PCBs		FLAG	FLAG		FLAG	FLAG	T FLAC		
EPA SAMPLE NUMBER :	FG-M68	r LAG	FG-M68DL	FG-M69	יבאי	FG-M69DL	FG-M70	'	•
				<u> </u>				<u> </u>	L
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gamma-BHC (Lindane)	2.0	U	6.0 U*	1.9		19 U*	1.9 U		
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gamma-Chlordane	2.0		0.84	1.9		19 U*	0.71 LJ		
ionities seeks and the seeks	100 E	_	25 - 10 PM 9 PM	\$200 FE (100 PE	_	1900			
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Aroclor-1232	39	Ū	120 U*	37 (J	370 U°	36 U		
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Aroclor-1260	39	U .	120 U*	37 l	J	370 U*	36 U		
Sample wt (g) :	30		30	30		30	30		
			4=			44			
%Moisture :	15		15	10		10	9		
Dilution Factor:	1		3	1		10	1		

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

INORGANIC/ORGANIC COMPLETE SDG FILE (CSF) INVENTORY CHECKLIST

Case No.	28507 SDG No. FGM68 SDG Nos. To Follow	v SAS No.	Date R	.ec <u>1</u> (0/2/00
EPA La	b ID: ATAS	ORIGINALS	YES	NO	N/A
Lab Lo	cation: 875 Fee Fee Rd. Maryland Heights. MO 63043	CUSTODY SEALS			
Region		Present on package?	x		
Re_Sub	mitted CSF? YesNo X	2. Intact upon receipt?	х		
Box No	(s): <u>1</u>	FORM DC-2			
СОММ	ENTS:	3. Numbering scheme accurate?		х	
		4. Are enclosed documents listed?	х		
7+am	Description	5. Are listed documents enclosed?	х		
<u>Item</u>	Description	FORM DC-1			
3	Description The ending page of sec. 6f was a typo error, and the auditor made the appropriate correction. The Form DC-1 reported that the OTR Record was absent although it was present in the CSF. The auditor corrected this error. A complete? EALIN-OF-CUSTODY RECORD(s) 9. Signed? TRAFFIC REPORT(s) PACKING LIST(s) 11. Signed? X ARBILLS/AIRBILL STICKER 13. Present? X 14. Signed? X 15. Dated? X 15. Dated? X 17. Dated? X 18. Are enclosed documents listed? X X X X X X ARBILLS/AIRBILL STICKER 13. Present? X 14. Signed? X 15. Dated? X				
	made the appropriate correction.	7. Complete?	х		T
8	The Form DC-1 reported that the OTR Record was absent	8. Accurate?		х	
		9. Signed?	x		
			x		1
		11. Signed?	x		1
		12. Dated?	х		
		AIRBILLS/AIRBILL STICKER			
			x		
		14. Signed?	х		1
			х	· · · · · · · · · · · · · · · · · · ·	
		SAMPLE TAGS			
		16. Does DC-1 list tags as being included?	x		
		17. Present?	х		7.
		OTHER DOCUMENTS			1
		18. Complete?	x		
		19. Legible?	х		1
		20. Original?		х	1
Over for	additional comments.	20a.If "NO", does the copy indicate where original documents are located?	х		
Audited	by: Tymidas	Tseng-Ying Fan/ESAT Data Reviewer	Date	10/6/	00
Audited	by:		Date		
Audited	by:		Date		
	Signature	Printed Name/Title			
	TO BE COM	PLETED BY CEAT	 		
Date		ate Entered: Date Reviewed:			
	Entered by:		 		
	Reviewed by:				
-	Signature	Printed Name/Title			
L	Signature	Fillied (value) [1][[6			

DC-2__

DISTRIBUTION:

White - Lab Copy for Return to Region

Pink - CLASS Copy Yellow - Lab Copy for Return to CLASS **EPA Form 9110-2** (2/98)

SEE REVERSE FOR PURPOSE CODE DEFINITIONS

Page 1 of 1

In Reference to Case No(s): 28507 SDG: FGM68 (0-2266)

Contract Laboratory Program REGIONAL/LABORATORY COMMUNICATION SYSTEM

FAX Record Log

Laboratory Name:	ATAS
Lab Contact:	Robert Wilhelm
Region:	
Regional Contact: ESAT Reviewer:	Mahmoud El-Feky - EPA Tseng-Ying Fan - ESAT
FAX initiated by:	Laboratory <u>X</u> Region

In reference to data for the following fractions:

SDG Narrative

Summary of Questions/Issues:

The semi-volatile section of the SDG Narrative contained several paragraphs that addressed problems for samples that did not belong to this SDG. The SDG Narrative was also missing the contract-required signature (OLM04.2, p. B-10, sec. 2.6.1). Please correct these errors and resubmit the SDG Narrative.

NOTE: Any laboratory resubmission should be submitted either as an addendum to the original CSF with a revised Form DC-2 or submitted as a new CSF with a new Form DC-2 (OLM04.2, p. B-26, 2.7.3), except those containing only replacement pages. Custody seals are required for all CSF resubmission shipments.

Please respond to the above items within 7 days to:

Mr. Mahmoud El-Feky
U.S. EPA Region 6 Laboratory
10625 Fallstone Road
Houston, TX 77099

If you have any questions, please contact me at (281) 983-2128.

Mauch thumpher /0/12/00
Signature Date
Distribution: (1) Lab Copy, (2) Region Copy, and (3) ESAT Copy

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

FGM68 Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.: SDG No.: FGM68

Matrix: (soil/water) SOIL Lab Sample ID: 30847.01

Lab File ID: Sample wt/vol: 30.0 (g/mL) G F8776.D

Level: (low/med) Date Received: 09/13/00 LOW

Date Extracted: 09/15/00 % Moisture: 15 decanted: (Y/N) N

Concentrated Extract Volume: 500 Date Analyzed: 09/18/00

Dilution Factor: 1.0 Injection Volume: 2.0 (uL)

Extraction: (Type) SONC CONCENTRATION UNITS: GPC Cleanup: (Y/N) Y pH: 6.9

(ug/L or ug/Kg) UG/KG CAS NO. COMPOUND

CAS NO. C	OMFOOND	(ug/I OI ug/kg/	00/ NO Q
100-52-7 Be	enzaldehyde	39	
108-95-2 P	henol	39	U
111-44-4 b	is(2-Chloroethyl)ether	39	o
95-57-8 2	-Chlorophenol	39	
95-48-7 2	-Methylphenol	39	
108-60-1 2	,2'-oxybis(1-Chloropropane)_	39	
98-86-2 A	cetophenone	39	
106-44-5 4	-Methylphenol	39	ס
621-64-7 N	-Nitroso-di-n-propylamine	39	
67-72-1 H	exachloroethane	39	o(0
	itrobenzene	39	0 T
78-59-1 I	sophorone	39	
88-75-5	-Nitrophenol	39	
105-67-9 2	,4-Dimethylphenol is(2-Chloroethoxy)methane	39	0 0
111-91-1 b	is (2-Chloroethoxy) methane	39	o
120-83-2 2	,4-Dichlorophenol	39	0U
91-20-3 N	aphthalene	39	o
106-47-8 4	-Chloroaniline	39	
	exachlorobutadiene	39	
105-60-2 C	aprolactam	_ 39	0 0
59-50-7 4	-Chloro-3-methylphenol	_ 39	
91-57-6 2	-Chloro-3-methylphenol -Methylnaphthalene	39	
1 77-47-41 H	exachlorocyclopentadiene	39	0 0
88-06-2 2	,4,6-Trichlorophenol	39	
95-95-4 2	,4,5-Trichlorophenol	98	0 0
92-52-4 1	,1'-Biphenvl	39	0 0
91-58-7 2	-Chloronaphthalene	39	0 0
88-74-4	-Nitroaniline	98	
131-11-3 D	imethylphthalate	39	
606-20-2	,6-Dinitrotoluene	39	0 0
208-96-8 A	cenaphthylene	39	
99-09-2 3	-Nitroaniline	98	
	cenaphthene	39	

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ATAS, INC Contract: 68-W-00-066

Matrix: (soil/water) SOIL Lab Sample ID: 30847.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F8776.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 15 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.9 Extraction: (Type) SONC CONCENTRATION UNITS:

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

CAB NO.	COMPOUND	(ug/II OI ug/kg/ OG/kg	Q
51-28-5	2,4-Dinitrophenol	980	Ū
100-02-7	4-Nitrophenol	980	<u>ט</u>
132-64-9	Dibenzofuran	390	บ
121-14-2	_2,4-Dinitrotoluene Diethylphthalate	390	บ
84-66-2	Diethylphthalate	20	J
86-73-7	Fluorene	390	บ
	4-Chlorophenyl-phenylether	390	U
100-01-6	4-Nitroaniline	980	Ū
534-52-1	4 6-Dinitro-2-methylphenol	980	Ū
86-30-6	N-Nitrosodiphenylamine (1)	390	บ
101-55-3	N-Nitrosodiphenylamine (1) 4-Bromophenyl-phenylether	390	บ
118-74-1	Hexachlorobenzene	390	<u>ט</u>
1912-24-9	Atrazine	390	บ
87-86-5	Pentachlorophenol	980	บ
85-01-8	Phenanthrene	31	J
120-12-7	Anthracene	390	ַ
86-74-8	Carbazole	390	ַ
84-74-2	Di-n-butylphthalate	29	J
206-44-0	Fluoranthene	77	J
129-00-0	Pyrene	75	J
85-68-7	Butylbenzylphthalate 3,3'-Dichlorobenzidine	390	บ
91-94-1	3,3'-Dichlorobenzidine	390	บบ
56-55-3	Benzo(a) anthracene	51	J_
218-01-9	Chrysene	62	J_
117-81-7	bis(2-Ethylhexyl)phthalate	390	บบ
117-84-0	_Di-n-octylphthalate	50	BJ
205-99-2	Benzo (b) fluoranthene	74	
207-08-9	Benzo(k)fluoranthene	23	J_
50-32-8	Benzo(a)pyrene	47	J_
193-39-5	Indeno(1,2,3-cd)pyrene	390	<u> </u>
53-70-3	Dibenz (a, h) anthracene	390	บ
191-24-2	Benzo(g,h,i)perylene	390	บ
(1) Cannot be	seperated from Diphenylamine		

OLM04.1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FGM68

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab File ID:

Lab Code: ATAS

Case No.: 28507 SAS No.:

SDG No.: FGM68

Matrix: (soil/water) SOIL

Lab Sample ID: 30847.01

Sample wt/vol:

30.0 (g/mL) G

F8776.D

Level:

(low/med) LOW Date Received: 09/13/00

% Moisture: 15

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500

(uL)

Date Analyzed: 09/18/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 6.9

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found:

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 2. 3. 4. 5. 6. 7. 8. 9.	UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN	4.45 4.62 5.08 5.35 5.78 6.05 7.48 7.52 20.34	330 760 370 120 600 110 240 310 150	J BJ J J BJ BJ
11. 12. 13. 14. 15. 16. 17.	ł composition of the composition			
20. 21. 22. 23. 24.				
26. 27. 28. 29.				

SDG No.: FGM68

F8777.D

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

FGM69

Lab Name: ATAS, INC

Lab Code: ATAS

Sample wt/vol:

Contract: 68-W-00-066

Lab File ID:

SAS No.:

Case No.: 28507

30.0 (g/mL) G

Matrix: (soil/water) SOIL Lab Sample ID: 30847.02

indian (boil) model, boil

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 10 decanted: (Y/N) N Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 4.0 Extraction: (Type) SONC

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

		(49/12 01 49/19/ 00/10	~
100-52-7	Benzaldehyde	370	٠ ت
108-95-2	Phenol	370	U
111-44-4	bis(2-Chloroethyl)ether	370	U
95-57-8	2-Chlorophenol	370	บ
95-48-7	2-Methylphenol	370	บ
108-60-1	_2,2'-oxybis(1-Chloropropane)_ _Acetophenone	370	บ
98-86-2	Acetophenone	370	U
106-44-5	4-Methylphenol	370	บ
621-64-7	N-Nitroso-di-n-propylamine	370	ט
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
120-83-2	2,4-Dichlorophenol	370	U_
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	บ
87-68-3	Hexachlorobutadiene	370	
105-60-2	Caprolactam 4-Chloro-3-methylphenol	370	บ
59-50-7	4-Chloro-3-methylphenol	370	U
71-5/-6	2-Methylhaphthalene	370	
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	920	U
92-52-4	_1,1'-Biphenyl	370	บ
91-58-7	2-Chloronaphthalene 2-Nitroaniline	370	บ
88-74-4	2-Nitroaniline	920	บ
131-11-3	Dimethylphthalate	370	บ
606-20-2	2,6-Dinitrotoluene	370	
208-96-8	_Acenaphthylene	370	U
99-09-2	3-Nitroaniline	920	U
83-32-9	_Acenaphthene	370	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

FGM69

Lab Name: ATAS, INC Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.:

SDG No.: FGM68

Matrix: (soil/water) SOIL

Lab Sample ID: 30847.02

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: F8777.D

Level: (low/med)

Date Received: 09/13/00

% Moisture: 10

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

LOW

Date Analyzed: 09/18/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 4.0

Extraction: (Type) SONC CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

CAS NO. COMPOUND

CAS NO. COMPOUND	(ug/L or ug/kg) ug/kg	Q
51-28-5 2,4-Dinitrophenol	920	Ū
100-02-7 4-Nitrophenol	920	U
132-64-9 Dibenzofuran	370	
121-14-2 2,4-Dinitrotoluene	370	U
84-66-2 Diethylphthalate	370	
86-73-7 Fluorene	370	
7005-72-3 4-Chlorophenyl-phenylether	370	U
100-01-6 4-Nitroaniline	920	<u>י</u>
534-52-1 4,6-Dinitro-2-methylphenol	920	ָ עַ <u> </u>
86-30-6 N-Nitrogodiphenylamine (1)	370	
101-55-3 4-Bromophenyl-phenylether	370	U
118-74-1 Hexachlorobenzene	370	U
1912-24-9 Atrazine	370	"ט"
87-86-5 Pentachlorophenol	920	<u>"</u>
85-01-8 Phenanthrene	370	U
120-12-7 Anthracene	370	บ
86-74-8 Carbazole	370	U
84-74-2 Di-n-butylphthalate	29	J
206-44-0 Fluoranthene	370	U
129-00-0 Pyrene	370	U
85-68-7 Butylbenzylphthalate	370	<u>"</u>
91-94-1 3,3'-Dichlorobenzidine	370	ַ ט
56-55-3 Benzo (a) anthracene	370	U
218-01-9 Chrysene	370	UU
117-81-7 bis (2-Ethylhexyl) phthalate	71	J
117-84-0 Di-n-octylphthalate	54	BJ
205-99-2 Benzo(b)fluoranthene	370	U
	370	<u>"</u>
50-32-8 _Benzo(a)pyrene	370	U
193-39-5 Indeno(1,2,3-cd)pyrene	370	<u> </u>
53-70-3 Dibenz (a, h) anthracene	370	- _U

OLM04.1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: ATAS, INC Contract: 68-W-00-066

SAS No.:

SDG No.: FGM68

FGM69

Matrix: (soil/water) SOIL

Lab Sample ID: 30847.02

Sample wt/vol:

Lab Code: ATAS

30.0 (g/mL) G

Case No.: 28507

Lab File ID: F8777.D

Level: (low/med)

LOW -

Date Received: 09/13/00

% Moisture: 10

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500

Date Analyzed: 09/18/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

pH: 4.0

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 15

l ————————————————————————————————————			·	·
CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	0
		======	=======================================	
1.	UNKNOWN	4.45	210	J
1:	UNKNOWN	4.61	860	BJ
3	UNKNOWN	5.08	270	J
4	UNKNOWN	5.35	90	J
4	UNKNOWN	5.62	420	J
5	UNKNOWN	5.78	920	Ĵ
6.	UNKNOWN	6.05	88	Ĵ
7.	UNKNOWN	7.48	240	ВJ
8	UNKNOWN	7.52	280	BJ
10. 605-48-1	ANTHRACENE, 9,10-DICHLORO-	14.16	90	JN
11	UNKNOWN	15.09	150	J
11.	UNKNOWN	15.46	90	J
12	UNKNOWN	19.45	130	J
13.	UNKNOWN	19.83	150	J
12. 13. 14. 15.	UNKNOWN	20.32	240	J
15.	ONKNOWN	20.32	240	ا
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1 47.]	
30.		l ———		
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FGM70

Lab Name: ATAS, INC

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507

SAS No.:

SDG No.: FGM68

Matrix: (soil/water) SOIL

Lab Sample ID: 30847.05

Sample wt/vol:

30.0 (g/mL) G

Lab File ID: F8780.D

Q

Level: (low/med) LOW

Date Received: 09/13/00

% Moisture: 9

decanted: (Y/N) N

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 09/18/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.8

Extraction: (Type) SONC CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

CAS NO. COMPOUND 100-52-7 Benzaldehyde 108-95-2 Phenol 111-44-4 bis(2-Chloroethyl)ether 95-57-8 2-Chlorophenol Ū 360 360 IJ 360 2-Chlorophenol 2-Methylphenol 360⁻ IJ 95-57-8 -95-48-7 360 Ħ 2,2'-oxybis(1-Chloropropane) TT 360 T08-60-1 Acetophenone U 360 98-86-2 Ħ 360 4-Methylphenol **T**06-44-5 N-Nitroso-di-n-propylamine 360 U 621-64-7 Hexachloroethane
Nitrobenzene U 360 67-72-1 U 360 98-95-3 78-59-1 Isophorone
88-75-5 2-Nitrophenol
105-67-9 2,4-Dimethylphenol
111-91-1 bis (2-Chloroethoxy) methane 360 U 360 Ū `360` 105-67-9 Ū 360 111-91-1 U 20-83-2 2,4-Dichlorophenol 91-20-3 Naphthalene 360 120-83-2 ับ 360 Ū 360 106-47-8 4-Chloroaniline **ֹ**'U 360 87-68-3 Hexachlorobutadiene 105-60-2 Caprolactam
59-50-7 4-Chloro-3-methylphenol
91-57-6 2-Methylnaphthalene ับ 360 ับ 360 Ū 360 ับ 360 U 360 U 910 U 360 ับ 360 U 910 360 IJ 360 U ับ 360 U 910 360⁻

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

FGM70

Lab Name: ATAS, INC

Contract: 68-W-00-066

SDG No.: FGM68 SAS No.:

Matrix: (soil/water) SOIL

Lab Sample ID: 30847.05

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: F8780.D

(low/med) LOW Level:

Date Received: 09/13/00

% Moisture: 9

Lab Code: ATAS

decanted: (Y/N) N

Case No.: 28507

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume:

CAS NO

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

COMPOUND

pH: 6.8

Extraction: (Type) SONC CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG 0

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360 360 27 360	U U J
360 27 360	U J
27 360	J
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360	_
	360 360 360 360 910

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FGM70 Contract: 68-W-00-066

SDG No.: FGM68

Lab Name: ATAS, INC

Case No.: 28507 SAS No.:

Matrix: (soil/water) SOIL

Lab Sample ID: 30847.05

Sample wt/vol:

Lab File ID: F8780.D

Level: (low/med) LOW Date Received: 09/13/00

% Moisture: 9

Lab Code: ATAS

decanted: (Y/N) N

30.0 (g/mL) G

Date Extracted: 09/15/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/18/00

Injection Volume:

2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup:

(Y/N) Y

8.8 pH:

Extraction: (Type) SONC

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

Number TICs found: 7

1UNKNOWN 2UNKNOWN UNKNOWN UNKNOWN	4.62	700	====
UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN	5.08 5.78 7.49 7.52 17.48 18.17	790 100 180 220 260 120 100	BJ J BJ BJ BJ J
8. 9. 10. 11. 12. 13. 14. 15. 16			
17. 18. 19. 20. 21.			
23. 24. 25. 26. 27. 28. 29. 30.			

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Date Analyzed: 09/22/00

FGM68 Contract: 68-W-00-066 Lab Name: ATAS, INC. SDG No.: FGM68 Lab Code: ATAS Case No.: 28507 SAS No.: Lab Sample ID: 30847.01 Matrix: (soil/water) SOIL Lab File ID: Sample wt/vol: 30.0 (q/mL) G % Moisture: 15 Decanted: (Y/N) N Date Received: 09/13/00

Date Extracted: 09/21/00 Extraction: (Type) SONC Concentrated Extract Volume: 5000(uL)

Dilution Factor: 1.0 Injection Volume: 1.0(uL)

GPC Cleanup: (Y/N) Y pH: 6.9 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG Q CAS NO. COMPOUND 319-84-6__alpha-BHC_ 319-85-7 beta-BHC 2.0 TT 2.0 319-86-8 _delta-BHC_ PJB $\overline{0}.51$ __58-89-9_ __76-44-8_ gamma-BHC (Lindane) 2.0 U $\overline{0}.12$ PJB Heptachlor 309-00-2 2.0 Aldrin Heptachlor epoxide 0.62 1024-57-3 0.50 БJ 959-98-8 Endosulfan I 1.7 PJB 60-57-1 Dieldrin 45 B 4,4'-DDE 4.8 Endrin PR 33213-65-9 _Endosulfan II____ PB 11 72-54-8 12 B 4,4'-DDD 1031-07-8 _Endosulfan sulfate_ **5.8** B 50-29-3 EB_ 4,4'-DDT 85 72-43-5 13 PJB Methoxychlor $\overline{2}.6$ 53494-70-5 PJB Endrin ketone PB 12 7421-93-4 Endrin aldehyde ΡJ alpha-Chlordane 0.315103-71-9[—] 0.87 J gamma-Chlordane 600 $\overline{\mathtt{B}}\mathtt{P}\overline{\checkmark}$ U 39 79 TT 39 TT 39 TT 39 U 39 39

1E PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FGM69

Lab Name: ATAS, INC.

Contract: 68-W-00-066

Lab Code: ATAS Case No.: 28507 SAS No.:

SDG No.: FGM68

Matrix: (soil/water) SOIL

Lab Sample ID: 30847.02

Sample wt/vol: 30.0 (q/mL) G

Lab File ID:

% Moisture: 10 Decanted: (Y/N) N Date Received: 09/13/00

Extraction: (Type) SONC

Date Extracted: 09/21/00

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 09/22/00

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

 $\overline{0.45}$

0.62

2100

37

74

37

37

37 37

37

GPC Cleanup: (Y/N) Y pH: 4.0

Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG > Q

CAS NO.

1024-57-3

959-98-8

60-57-1

⁻72-55-9⁻⁻

72-54-8

72-20-8

33213-65-9

1031-07-8⁻

__50-29-3_ __72-43-5

53494-70-5

COMPOUND

__Dieldrin

Endrin

4,4'-DDD

4,4'-DDT

5103-74-2 gamma-Chlordane 8001-35-2 Toxaphene 12674-11-2 Aroclor-1016

11104-28-2 | Aroclor-1221

11141-16-5 Aroclor-1232 53469-21-9 Aroclor-1242 12672-29-6 Aroclor-1248 11097-69-1 Aroclor-1254 11096-82-5 Aroclor-1260

319-84-6 alpha-BHC
319-85-7 beta-BHC
319-86-8 delta-BHC
58-89-9 gamma-BHC (Lindane)
76-44-8 Heptachlor
309-00-2 Aldrin
1024-57-3 Heptachlor epoxide 1.9 1.9 0.56 PJB 1.9 U 0.090 PJB 0.33 PJ 0.40 PJ ЪĴ 1.2 Endosulfan I PJB 2.3 110 PEB 4,4'-DDE 5.0 PB Endosulfan II 28 B _16 | PB Endosulfan sulfate____ ⁻16 B 270 ĒB 50-29-3 72-43-5 3494-70-5 7421-93-4 5103-71-9 5103-74-2 Gamma-Chlordane PB 51 8.9 PB 44 PB

PJ

PJ

BP

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FGM70

Lab Name: ATAS, INC.

Contract: 68-W-00-066

Lab Code: ATAS

Case No.: 28507

SAS No.:

SDG No.: FGM68

Matrix: (soil/water) SOIL

Lab Sample ID: 30847.05

Sample wt/vol: 30.0 (g/mL) G

Lab File ID:

% Moisture:

9

Decanted: (Y/N) N

Date Received: 09/13/00

Extraction: (Type) SONC

Date Extracted: 09/14/00

Concentrated Extract Volume:

5000 (uL)

Date Analyzed: 09/20/00

Injection Volume: .

1.0(uL)

Dilution Factor:

GPC Cleanup: (Y/N) Y

pH: 6.8

Sulfur Cleanup: (Y/N)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG

	/ 0
	ן די
delta-BHC 0.20	PJ
gamma-BHC (Lindane) 1.9	ן דט
Heptachlor 0.10	PJ
Aldrin 1.9	ט –
Heptachlor epoxide 1.9	ן די
Endosulfan I	U
Dieldrin 0.55	JB
74,4'-DDE 0.18	PJ
	J U
Endosulfan II 0.44	PJB
-4,4'-DDD 0.33	PJ P
Endosulfan sulfate 0.54	PJB
1.6	PJB V
Methoxychlor 0.72	PJ
Endrin ketone 3.6	
	PJB
Talpha-Chlordane 0.10	PJ PJ
	PJ
	<u>"</u>
	<u></u> ד
	Deta-BHC